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LEAD THERAPY IN MALIGNANT DISEASE

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The name of Professor Blair Bell of Liverpool is intimately associated with this treatment. His views regarding the nature of malignant neoplasms are:—There are many extrinsic and intrinsic factors which can produce the "precancerous condition" in, or in relation to, the cells concerned—radiations of various kinds, heat, trauma, infection, toxaemias, senescence, and the rest, all of which reduce the vitality of the cell—a condition which may terminate in recovery, death or in reversionary development in order that the cell may live. It seems probable that the metabolic distrubance leading to the change may be one of oxygen starvation.

The ancestral type to which the cell seeks to return in the reversionary process is that of the chorionic epithelium, which has the power of invasion and erosion of blood vessels in its search for nutriment. Malignant neoplasia except, *ipso facto*, in the case of chorion epithelioma, is therefore a specific process of differentiation from high specialization back towards or to the most ancestral type—the chorionic epithelium. Lead was chosen because of its action in the chorionic epithelium—an action observed by Blair Bell many years ago.

The most outstanding characteristic of malignant growth is its capacity for infiltration into neighbouring tissues, a property likewise possessed by the chorion.

The clinical value of lead is probably to be sought in the direction of causing the cessation of certain chemical processes due to enzymes, upon which the activity of the cell depends.

Pharmacological effects of lead.—From the pharmacological standpoint the lead ion has no specific toxicity towards embryonic and rapidly growing tissues. Experimental evidence (with many metals) is in favour of lead having relatively greater powers of inhibiting the germination of cells or of retarding growths of embryonic tissues in strengths which are not toxic to more mature tissues. The effects on the heart and blood pressure are transient.

The action of colloidal lead on animal tumours.—Professor Carter Wood experimented on small animal tumours. A short time after the injection of a sublethal dose of lead the tumour becomes intensely congested and later œdematous. This change is due to the thrombosis of a certain number of vessels in the tumour. This is followed by necrosis of a large part of the growth, often leaving a thin shell of tumour cells enclosing a haemorrhagic sac. In a few instances the tumours went on to final absorption but in general, recurrence takes place after a longer or shorter time despite the administration of sublethal doses of lead. Evidently the action observed is predominately due to the thromobosis and only to a secondary degree to the direct toxic action on the tumour cell.

But thrombosis is not frequent in human tumours.

On the histological changes found in cancerous tissues treated with colloidal lead suspension.—In the majority of lead treated malignant growths no histological evidence of its action can be detected ; in one or two cases it was observed that lead had increased the regressive changes which usually occur in malignant neoplasms and in one it had slowed the rate of growth and so allowed the epithelium to become more differentiated. In another case there was a remarkable retrogression of the epithelial cells occurring in metastases examined from the lung, liver and suprarenal.

The lesser degrees of regression in the relatively avascular, also fibrosed lymphatic gland indicates that the action of lead chiefly depends upon a well developed and unobstructed blood supply and perhaps lymph supply. It is histological evidence of an inherent difficulty in treating cancer by lead or by any other drug.

Physical and Bio-chemical properties of cancer tissue.- Cancerous tissues freshly removed from the body, have a higher electrical conductivity than normal tissues under the same conditions. The electrical conductivity of the outer growing part of cancers is higher compared with the central non-growing parts.

Increased conductivity necessarily means that the material now possesses an increased permeability to such water soluble constituents on the part of any membrane or septa in the cells.

In actively growing malignant tissue the calcium content is markedly low, whilst that of potassium is high. Calcium has an inhibiting effect on tumour growth. Further in malignant growth (tissue) the ratio of, lecithin to cholesterol is excessive ; the larger content of water

and the high ratio of lecithin to cholesterol would go hand in hand with increased permeability of the tissues. Chorionic Villi also strongly resemble cancer tissue in composition.

In experimental growths it was found that the blood which had passed through the tumour contained distinctly more lactic acid. Whether this points to an acid condition in the growing part of the tumour itself is uncertain. The blood of cancer patients usually exhibits an increased antitryptic activity. The antitryptic action is of the nature of a protective effect against excessive enzyme activity. The mechanism of infiltration is due to changes brought about in the connective tissue by excess of lactic acid.

The following cases were treated in the 1st Surgeon's wards under his direction and suggestion and are referred to by Col. Bradfield, I.M.S., in the annual report of the General Hospital for 1929.

Cases of malignant disease which will not be benefited by Radium or which were inoperable or inaccessible for various reasons were treated with lead selenium (Todd's D. 4f).

Total amount of lead 0·6 gms. Pb can be given. This should not be combined with irradiation. If it is so combined the growth of the neoplasm is promptly and markedly stimulated. Stationary or diminishing carcinoma begin to extend quickly immediately after X radiation. It would appear that D. 4f increases the sensitiveness of cancer to X-radiation and radium increases the sensitiveness of cancer to D. 4f This sensitisation is temporary. After an interval of 6 weeks or longer there is no evidence of unusual reaction.

Before starting lead selenide treatment test hepatic and renal functions. Total urinary output and absence of abnormalities in urine are enough. Frequent leucocyte counts are to be done in regulating the dose.

Contra indications to lead treatment.—Kidney and liver functions must be good. In malignant diseases of liver and kidney great care must be taken. Severe myocardial insufficiency necessitates the more cautious use of lead and serious anæmia with a lowered cell count is a contra-indication, until considerable improvement by blood transfusion or other measures has been effected.

Acidosis with Ketonuria is a contra-indication. So also is definite cachexia. So long as the patient is in good condition with a prospect of about 6 months of life, if other things are equal, treatment can be contemplated.

Indication.—Cancer of the lung nor malignant disease of the central nervous system need not be excluded now.

Dose.—0·5 grm. of lead is the minimum desirable; maximum 0·8 grm. to 1 grm. of lead. Lead selenide is too stable, but not inert. It is singularly atoxic and is administered, by the intravenous route It can be injected into an artery in cases of malignant tumours of the limbs. It was found that the lethal dose of lead to the chorionic epithelium of a rabbit was half of the fatal dose to the mother and after this information was obtained massive instead of small doses were employed. Blair Bell's investigations show that patients with large tumours are less subject to the bad effects of lead than patients whose growth is small in proportion to the body weight.

What happens to the lead.—Lead is stored in the body but it tends to be eliminated from the body in course

of time. There is no direct evidence that the growth takes up lead. Spleen, liver, lung and kidney contained the greatest proportion.

There is complete arrest or even disappearance of the growth with reappearance after a short or considerable length of time. It is advisable to continue in a modified form, the treatment over a longer period of time

Rationale.—Rationale is to attempt the elimination by synthetic products, of certain cells developed from and dependant on ordinary somatic tissues. "Organo-chemotherapy".

Immediate Symptoms.—In a few cases a feeling of sinking was noticed.

Delayed reaction.—Severe vomiting, sometimes jaundice. Very soon after the administration there is a severe toxic action on the blood with secondary anæmia.

Special action.—Lead exerts a special action on growing tissues of embryonal type and sublethal concentrations of lead on retarded growth particularly in young animals.

The size of the growth after treatment is no criterion because it might be cystic or necrotic.

There is very little evidence that more lead was found in the tumours than in normal toxics and most of it was found in the liver. In all cases under treatment the urinary output over 24 hours is recorded and specimens are examined on two consecutive days following the injection. Prior to the next injection blood and urine are again examined. If the H_b is below 50%, patients are given a blood transfusion. If the granular basophil

count rise much above 5,000 per million red cells the next injection is delayed on the dose is reduced.

The following are particulars of cases treated with lead selenium :—

(1) 50, male, Muhammadan, tailor, teeth dirty, P. A. present, duration 8 months, cancer of liver clinically; no growth in rectum; R. B. C. count 2,730,000; WBC 3,900; H_b 30%; intravenous injection produced an immediate sinking feeling and profuse perspiration. Two injections of 5 c.c. each were given at intervals of a week. Chemical examination of urine did not reveal any lead in urine; Rapid enlargement of the tumour was noticed while he was in hospital. He died in 3 weeks' time.

(2) 50, male, Muhammadan, merchant, duration 8 months, cancer stomach (diffuse type) was seen on exploratory operation; patient was admitted for dyspepsia and increased visible peristalsis was present; inoperable, as peritoneum was affected ; RBC 3,480,000; WBC 7,500 57% H_b; 3 injections of 5 c.c. each ; died a month after. No lead was detected in urine. The patient improved for a time in appetite and in general condition.

(3) 70, male, Hindu, beggar; intrinsic cancer larynx; RBC 2,890,000, WBC 8,430; 65% H_b; low tracheotomy was done under local anæsthesia as he had difficulty in breathing, a week after intravenous injections were given (twice). RBC after the 1st injection 2,800,000; WBC 10,000 and H_b 32%; he had severe reaction and he died of septic pneumonia; post-mortem examination showed intrinsic cancer of larynx affecting both vocal cords.

(4) 30 years, Hindu, male, admitted on 25th November 1930 from Tenali for tumour right thigh, duration 5

months. A painful swelling occupying the whole of the anterior portion of the thigh with an open ulcer fungating, about 2″ in diameter. Hip joint not involved. Movements normal. Previous operation in Tenali three months ago.

X-ray :—Bone not affected. W.R. negative.

Urine :—Nil abnormal.

Blood :—	28—11—1929	14—12—1929.
R. B. C.	1,820,000	1,400,000.
W. B. C.	17,000	17,000.
Hb %	35%	25%

27—11—1929. Section cutting.

Pathological Report :—Round celled sarcoma.

7—12—1929. Lead selenide injection 5 c.c. intravenous. Had been keeping temperature from 101° to 102°. Evening temperature 102°; Pulse 124; Resp. 26; no cough or vomiting.

Lead not detected in urine.

13—12—1929. No lead detected in urine

16—12—1929. Lead selenide 5 c.c. intravenous. Keeping temperature 101° to 102°; Pulse 120; Resp. 26, no cough or vomiting.

22—12—1929. No lead detected in urine sent on 17—12—1929.

25—12—1929. Pain and swelling better. Central growth has sloughed off. There is a big sloughing cavity. Local condition much better.

27—12—1929. Hb 15%; R. B. C. 1,350,000; W. B. C. 16,000.

3—1—1930. No lead detected in urine.

7—1—1930. Fresh Liver 6 oz. daily.

9—1—1930. The growth has been extending upwards.

14—1—1930. Lead selenide 8 c.c. injected into various regions of the tumour.

16—1—1930. H_b less than 10%. 15 ozs. of citrated blood (9 oz. of Blood + 6 oz. of 2% Sod. citrate sol.) infused.

24—1—1930 counter-incisions.

There was a temporary increase to 15% H_b and the patient apparently improved; but he died 3 weeks after (fresh liver was continued throughout). R. B. C. count was not materially affected.

There was no doubt that in this case the tumour apparently disappeared but the patient became too feeble.

The best results from colloidial lead have been obtained from tumours of the breast, throat and from sarcomata.

(5) 45 years, male, Hindu, ryot. Admitted 21—11—1929.

Cancer Palate Duration 2 months. A soft circular fungating growth on the left side of the hard palate and also the adjacent left alveolar margin with everted edges of the size of a small lime with slightly granular surface and overhanging edge. The inner surface of the left cheek also ulcerated. Tongue not involved. Salivation. Speech slurring. Two small glands in left submaxillary triangle. Shooting pain over the left half of the head. Teeth dirty. Teeth on the left side all fallen from upper jaw.

W. R. Negative. Urine Nil abnormal. 23—11—1929 Clinical photo taken.

Blood:—	7—12—1929	14—12—1929.
R. B. C.	2,670,000	3,290,000.
W. B. C.	9,000	11,000.
H_b %	55%.	45%.

25—11—1929. Dental extraction and section cutting.

Pathological Report:—Epithelioma.

7—12—1929. Lead selenide 5 c.c. intravenous. Temperature 100° in the evening; Pulse 100, Resp. 26. No vomiting or cough present.

13—12—1929. Lead not detected in urine.

16—12—1929 Lead selenide 5 c c. intravenous.

22—12—1929. No lead detected in urine sent on 17—12—1929.

27—12—1929. Lead selenide 7½ c.c. H_b 62%.

3—1—1930. No lead in urine sent on 28—12—1929.

6—1—1930. *Diathermy*: the whole growth freely cauterized with the diathermy knife and removed piece-meal the cauterization extending in the antrum.

7—1—1930. Diffuse oedema of face. patient in great pain.

8—1—1930. Oedema of face much better.

9—1—1930 swelling gone down.

14—1—1930. Lead selenide intravenous 2 c.c. Sharp rigor temperature 102°.

31—1—1930. Lead selenide 15 c c. intravenous,

3—2—1930. Section taken.

4—2—1930. No lead in urine.

5—2—1930 Patient discharged relieved. The diathermy removed the growth which has apparently healed. Lead selenide had no local action on the growth.

This patient has been reported as "cannot be traced". The patient came back much improved; there was a small growth in the hard palate which was treated with "Radium pad", *i.e.*, a special pad to fit the palate by Col. Bradfield. The patient has come now for a second treatment with radium. The patient is in a remarkably fit condition. There are no enlarged lymphatic glands.

(6) 50 male, Hindu, Nomadic tribe, fungating cancer right cheek; very advanced involving both sides of cheek and floor of mouth; Radium teletherapy 7 gm. hours and lead selenide 5 c. c. was given intravenously. No improvement was noticed. As has been observed in para. 1, the combination of radium and lead should not be practised; this was done in this case before this observation was published by Todd; but no harmful effect was noticed and the patient was lost sight of.

On admision R.B.C. 3,980,000; W.B.C 16,250; H_b 62%

(7) 30, male, Hindu, Planter, Malignant tumour abdomen, duration 3 months, secondary to a malignant tumour of an incompletely descended testis (Rt) which was removed 3 months ago in another hospital; admitted with paraplegia and deposits on spine; R.B.C. 2,530,000; W.B.C. 11,300; H_b 50%, 3 injections of lead; no improvement was noticed; going downhill; bedsores in bad condition; cystitis present.

(8) 25, male, Muhammadan; amputation upper third thigh for sarcoma knee, 5 months previously; admitted with haemoptysis and pain in the chest. An enormous number of secondary deposits were seen on X-Ray examination; during his stay in hospital his heart was found displaced to the right; no signs of fluid in chest present; he had profuse haemoptysis on 4 occasions; 4 intravenous injections 5 c.c., 10 c.c., 10 c.c., 10 c.c. were given; he died in a month after admission.

(9) Male, Hindu, 35, Process server, duration of disease 2 months, cancer liver, R.B.C. 4,130,000, W.B.C. 7,300; 65% H_b; 2 injections of lead selenide; developed jaundice and ascites and died.

The first case treated by Professor Blair Bell was an ulcerating carcinoma of the breast in 1920-21 which got well.

The method of treatment has not been successful in other hands. It was tried in St. Bartholomew's Hospital London in 1927 and 1928 and the results were reported to the International Conference in London; it was not a success there but Professor Blair Bell did not accept them as a fair trial.

Conclusions.—Without treatment the patients reported in these series would certainly die. Lead selenide has certainly some action on the tumour which in case No. 4 almost certainly disappeared.

These cases are not the proper cases for the trial of the drug. According to Todd at least 6 months expectancy of life is required, and case No. 5 has done remarkably well. It would be proper not to restrict oneself to one method of attack. Diathermy, radium,

bloc dissection of glands and lead selenium have all their proper value and share in our methods of attack and treatment.

My thanks are due to Col. Bradfield, I.M-S., for all the encouragement and help.

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Henry Ford is trying a new experiment in dietary. He believes in eating only one type of ford (A typists devil for "food" we wonder if old or new model ?) only at a meal, fruit for breakfast, protein for lunch, starch for dinner "vegetables mix better with other foods than anything else" he says, "and can be eaten at all times Milk mixes with fruit." He has had his diet tested on the boys in his schools in Massachusetts and Michigan with exceptional results. He drinks no tea or coffee and the boys also do without them.

Overeating, according to Henry Ford, puts the older people out of business just when their work should be most valuable.

He is 66 years old now and expects to live till 85 or perhaps 100.

CHOLECYSTOGRAPHY

By Dr. M. G. SANTANAKRISHNA PILLAI, L.R.C.P. & S. (Edin.), D.M.R.E.

Historical.—Graham and Cole working on the global capacity of the liver demonstrated the utility of employing certain dyes for visualising the Gall Bladder. They first worked with Sodium tetra-iodo—phenolphthalein but on account of inconsistency in toxicity due to impurities Tetrabromophenolphthalein was tried. They showed that the intravenous administration of Sodium tetrabromophenolphthalein is relatively non-toxic and that this body is excreted almost exclusively by the liver. The villi of the gall bladder concentrate these dyes to such an extent that it becomes opaque to X-Rays.

The toxicity of the Iodine salt has been successfully traced to impurities contained therein. But the Iodine salt (due to the higher atomic weight of Iodine) produces a greater density of the picture and is actually less toxic than the Bromine salts when given in doses of 3·5 grams to an adult; whereas to produce the same density (on the film) larger doses of the bromine salt have to be given.

The following conditions are essential for visualisation of gall bladder:—

1. The drug, given orally, must be completely absorbed by the alimentary tract.

2. The durg, must be excreted freely by the liver; otherwise, as in Cirrhosis and atrophy of liver interfering with efficiency of the liver, the test fails.

3. The Hepatic and Cystic ducts must be patent in order to facilitate the filling of gall bladder; the patency of gall bladder and the bile ducts will determine the easy entering into and exit from the gall bladder.

4 In fistulous communications of gall bladder with surrounding structures, bile will drain away and thus nullify the results.

5. The Epithelium of the villi from the mucous membrane of the gall bladder must be efficient enough to concentrate the dye under the submucous layer. Any condition interfering with the integrity of the mucous membrane results in reducing the degree of visibility.

6. When a large number of gall stones are present in the gall bladder the flow of bile in sufficient quantity necessary for the required concentration is wanting; it thus renders visualisation impossible or indifferent.

Interpretation of Results.—1. A shadow of the enlarged gall bladder as in Mucocele may sometimes be obtained, though it can be made out by careful scrutiny. The relative fullness and the subsequent diminution and emptying of gall bladder will also give a clue to its physiological function.

2. The outline of the gall bladder will be deformed in case of inflammatory, other intrinsic and structural changes. Certain cases may show relatively sluggish filling and emptying due to defective hepatic excretion or to obstructive lesions.

3. A mottled appearance of the shadow may be due to a variety of causes. Gas in the hepatic flexure overlying the gall bladder very often produces a mottled

appearance as also infiltration of calcium salts of the sub-mucous layer of the gall bladder (gall stone gravel.)

4. In this test if the dye has been administered orally its presence in the alimentary tract explains the absence of gall bladder shadow, but if the dye has been administered intravenously a negative result leads us to question the efficiency of the liver or the patency of the ducts from pressure within or without.

In the majority of instances a fully formed normal Cholecystogram will show at its best when taken 14 hours after administration of the dye.

The intravenous route is a more satisfactory one as it does away with the uncertainty of results as in the case of oral administration But on account of the toxic reaction which follows the intravenous route the oral administration is more popular with the profession.

The following points are to be observed to ensure the best results in Cholecystography :—

Intravenous and Intraoral methods with Sodium Tetraiodophenolphthalein (*S. T. I. P. P.*)—The S. T. I. P. P. administration must not exceed 3·5 grms.

Castor oil is an unsatisfactory preparatory purgative in as much as it gives rise to formation of gas by the subsequent allaying of the peristaltic activity of the bowels.

Day previous to Examination.—A purgative should be given preferably Compound Liquorice powder or Petrolagar in sufficient quantity in cases of irritable bowels, and no purgative at all when there is Diarrhoea.

1st *Day of Examination.*—1. A cup of tea and a biscuit may be given early but no breakfast.

2. Film 1 of Gall Bladder area is to be taken as control film.

3. Ordinary lunch may be given.

4. At 6 p. m. a light supper without meat is to be given.

The object is to avoid stimulating the liver. Well buttered bread in order to help the emptying of the gall bladder is to be given.

5. At 8 p.m. (*a*) Intravenous method—S. T. I. P. P. to be administered intravenously.

(*b*) Intraoral method—S. T. I. P. P. capsules to be given.

In order to find out the idiocyncrasy of the patient to the drug 1 or 2 c. c. of the solution is injected and after half an hour if no reaction is noted, the remaining solution is injected.

In the case of oral administration of the capsules, if the keratin coating of the capsule is defective and the hydrochloric acid of the stomach comes in contact with the Bromine and Iodine salt a chloride is formed which does not cast a shadow. Sometimes it so happens that these capsules are not absorbed at all. In this case the desired result will not follow.

2nd Day of Examination.—1. The patient should report at the X-Ray Institute at 10 a.m., for film 2 to be taken.

2. The above film is developed and examined immediately. If a good shadow is obtained, 'liquid Barium' is given and the relationship of the pyloric end

of the stomach and the duodenum to the gall bladder is determined by taking a third film.

Film 3 is taken—if no shadow is shown the examination of the gall bladder ceases but that of the pyloric end of the stomach and the duodenum should be carried on.

3. A meal rich in fats is then given and 2 to 4 hours later Film 4 is taken. The object of the fatty meal is to excite and partly empty the gall bladder.

3rd Day of Examination.—Film 5—24 hours after liquid Barium to show Barium in colon and the relationship of the hepatic flexure to gall bladder.

Intravenous S. T. I. P. P.—3 grams. Sodium Tetraiodophenolphthalein (S. T. I. P. P.) is dissolved in 40 c. c. of freshly distilled water and the solution filtered through a fine filter and sterilised in a water bath for 15 minutes. This makes a 7·5% solution.

The injection is given intravenously, very slowly, care being taken not to allow extravasation outside the vein as induration of the tissues may be produced; but, with this strength of solution no sloughing of the tissues takes place.

Intraoral S. T. I. P. P.—Keratin coated capsules, each containing 0·3 grms. of S. T. I. P. P. are used; 8 to 12 capsules are given according to weight of patient. The total quantity of S. T. I. P. P. should not exceed 3·5 grms., that is, about 12 capsules.

Two capsules should be swallowed by the patient, every 15 minutes, along with a drink of water to facilitate the passage of the capsules from the stomach on to the duodenum; the patient should lie on the right side until all the capsules are taken with a similar object in view.

The same salt in the form of Keratinised granules under particular names "Shadocol" "Opacal," etc., has been used at the Government X-Ray Institute with very good results. This has the advantage of being taken all in one lot in a tumbler of water followed by frequent drinks of water to facilitate its entry into the duodenum with the least possible delay in stomach with a view to avoid the action of Hydrochloric acid on the granules.

Remarks.—The shadows in the gall bladder may be due to a variety of causes :—

1. A kidney stone of the soft variety, foreign bodies in the alimentary tract and other artifacts may simulate a gallstone shadow.

2 The density of the shadow, the relative position of the gall bladder, its mobility, its relative filling and emptying, its persistence or the alteration of its position after a purgative or enema and its relation to the Duodenum and the Hepatic flexure as well as various other clinical factors should be taken into account before implicating or exhonerating the gall bladder.

A negative result more often gives a clue to the real pathological lesion than a normal shadow after the administration of the dye.

A gall bladder lesion is very often intimately connected with pathological lesions involving the duodenum, stomach and other parts of the intestinal track.

In certain cases a pyelogram may be necessary to identify the suspicious shadow.

Advanced diseases of liver involving destruction of tissue, complete obstruction of the cystic duct as evidenced by clay coloured stools, unsplit fat, etc., are contraindications. So are advanced diseases of kidneys and heart.

MODERN PSYCHIATRIC AND MENTAL HYGIENE INSTITUTIONS

By Dr. VENKATASUBBA RAO, M.D., D.P.M.

Psychiatry and mental hygiene have made rapid progress during the last two decades. Many factors have contributed to this advancement. To mention a few, the greater psychological interest taken in the study of human behaviour and the underlying causes for such acts, the application of the other branches of science such as Biochemistry, Physiology, Pathology, Bacteriology, etc., for the investigation of mental cases, and the free utilisation of the services of specialists in other branches of Medicine and Surgery, for diagnostic, preventive and curative purposes, the introduction of a course of normal psychology, study of personality, intellectual and emotional development, and their deviations, more elaborate understanding of psychopathology during the scholastic study of medical students and by those specialising in this branch, and the devotion of interested people to familiarise the profession with the technicalities and scope of useful work in this field, have all contributed to push this specialised branch forward. The success so far attained, is not inconsiderable, though in a field of such width and complexity, there is always scope for research and further progress. In this paper, it is proposed to give only a brief idea of institutions run on modern lines for preventive, palliative and curative purposes.

I. *Institutions for dealing with children.*—The best period for training human beings in proper habits,

reaction patterns, and good personality traits, in the early years of life. Such training will ensure the development of usefulness, self-reliance, independence and efficiency and make them happy and altruistic citizens in after life, decreasing the number of the discontented, the unhappy, the neurotic, the dependent and the delinquent.

It is taken for granted that all parents are capable of putting their children in proper ways, which is not true. Parenthood, like any other profession such as law or medicine, requires training for success. Parents, even if intelligent and educated otherwise, are not yet trained to be efficient in their jobs. Hence they require guidance by trained teachers, psychologists and psychiatrists, in skilful handling of the young, so that they become well adjusted in their environment, an asset to themselves and to society.

Study of child psychology is attracting more attentions at the hands of ardent research workers and useful knowledge is being added. Children being dynamic, their energies have to be properly directed, instead of being curbed with "donts" on all sides. Improper conduct might be the result of misdirected energy or represed emotions. Intelligence, aptitudes, desires and personality traits may vary from child to child. For purposes of understanding the nature and needs of children, for their educational, vocational, social and recreational guidance, for the study of the causes, preventive and curative measures in cases of delinquency, for utilising such places as living laboratories for scientific investigation and practical training of workers in this new field, different types of institutions have come to existence. To mention a few :—

(*a*) Nursery schools, where young children between 2 and 5 years of age are kept during the day time under the guidance of a trained teacher and taught habits of cleanliness and tidiness, proper eating, clothing, playing with group, self control, self help, obedience, etc.

(*b*) Child research centres, for the study of development of personality, of childhood education and behaviour problems.

(c) Bureaus of juvenile research for educational vocational, social and recreational guidance and readjustment, for speech training as also for the study of delinquency.

(*d*) Child guidance clinics for advising the parents regarding proper habit formation in their children, and for dealing with cases of uncontrolled instincts and emotions and other personality disorders.

In these institutions, a thorough examination, including physical, psychological, psychiatric, laboratory, etc., is done, an account of the social setting is obtained through the services of a psychiatric social worker, parents are advised suitably and therapeutic measures are instituted.

II. Institutions for dealing with adult psychopathic (borderline) patients.—For handling cases of adults, who are neurotic, inefficient, unsteady in their work, uncontrolled in their emotions, and are maladjusted in the family and society, or those who exhibit early signs and symptoms of mental breakdown, in the form of depression, ideas of reference, obsessions, fears, anxiety,

suspiciousness, persecution and so on, out-patient clinics and wards in General Hospitals are made available, with facilities for complete physical, psychological and psychiatric examinations in addition to various laboratory investigations. In some of the big educational centres as in Harvard, John Hopkins, Michigan and Colorado universities, well equipped and staffed separate buildings are provided for the care of such patients. In some hospitals, early mental cases are treated in the general wards along with other medical cases. In others, separate psychiatric wards are opened. In all these places, provision is made for treatment by psycho-, physio-, hydro-, and occupational therapy, in addition to greater recreational and social amenities.

III. Institutions for definite mental cases.—Mental Hospitals are no longer mere places for custody of mental patients. There are the reception wards for admitting new cases, with different types of laboratories and facilities for consultation with specialists. A complete investigation of newly admitted cases is undertaken before a diagnosis is ventured. There are separate wards for disturbed and violent patients, for quiet and convalescent cases, for treating medical and surgical patients with necessary equipment and annexe, and also for old, crippled and infirm cases and so on. No modern hospital is complete without equipment for different types of therapeutic measures, occupational and recreational cottages, pathological museum, library for the physicians and patients and a research department. Newly admitted cases are discussed in a conference of the medical staff. A better understanding of the different types has been made possible by the elaborate history of the social setting, personality, traits, etc.; as well as by the greater attention paid to the study of abnormal

Psychology, Psychopathology and Clinical Psychiatry. Such hospitals form important centres for training of psychiatrists, students, nurses and social workers. An outpatient department is also conducted for the benefit of the discharged patients and those that can be treated without admission. The percentage of cases who have successfully adjusted themselves in society, after their discharge, through the help of social workers, is increasing. However the success by the treatment of the end products of mental disorders is yet unsatisfactory, as in the case of advanced diseases of other systems. More hope lies in the preventive Mental Hygiene measures in the earlier years of life as well as dealing with cases at the very early stage of breakdown.

IV. *Clinics in connection with Schools.*—With a staff of physicians, psychologists, nurses and visiting teachers (teachers with social service training), these clinics are intended to deal with cases of educational, emotional and conduct problems in addition to the care to be given for physical ailments. Even milder degrees of mental defect are detected and training to these dull aud backward children is given in special classes, with more manual training. Other children are given individual attention and helped to develop to their full capacity by bringing out the best aud encouraging original work. Cases of maladjustment are investigated by co-ordinating the efforts of the school and the home, through the help of visiting teachers.

V. *Institutions for defective children.*—Mental defect being of various grades, treatment accorded would vary according to the level of intelligence. For the lowest type, very little training is feasible and the best that can be expected is to keep them healthy, clean and tidy.

For the higher grade defectives, however, training of various sorts for good habit promotion, control of their instincts, and for learning various kinds of handwork and outdoor occupations according to their capacity and inclination, and social adjustment, is given to make them useful to themselves in becoming self-supporting and less of a menace to society by not becoming dependent and delinquent.

VI. *Colonies for epileptics.*—With a regulated open air and simple life, these patients are made happy and useful.

VII. *Psychiatric clinics in connection with institution with institutions for the delinquent and criminals.*—These clinics with the usual staff, conduct a physical, psychological and psychiatric examination, go into a detailed study of the environmental factors and try to understand the causes at work for the anti-social behaviour. There are various types of institutions for dealing with this class. Special residential training schools are provided for the care and training of unruly and delinquent boys and girls whom it is inadvisable to keep in their own homes. After training, they are returned to the community to get adjusted, with the help of social workers Reformatories take in older boys and girls, greater disciplinary measures are enforced, vocational and moral training is given and inmates are discharged, if deserving, to the community under the supervision of parole officers. Defective delinquents are specially incorrigible and dangerous and discharge is made with great discrimination. Prisoners are also examined fully, classification is made, training in some suitable vocation and in good habit and character formation is given and they are discharged to become useful citizens, under the guidence of parol officers.

VIII. Psychiatric clinics in Juvenile and Adult criminal courts.—A Juvenile court is a place of informal enquiry for the delinquent behaviour in the young under 16 years. Some of the suitable cases are referred by the judge to the clinic for opinion. After an investigation of the social, physical, psychological and psychiatric conditions, recommendations best suited for the individual cases are made and the judge invariably accepts such recommendations.

This is an important preventive work in cutting at the root any antisocial tendencies at an early stage.

In connection with juvenile courts, there are Detention Homes, for keeping children from unsuitable homes, during the period of investigation.

In some adult criminal courts also, similar procedure is adopted, to assist the judges in an intelligent and helpful disposal of the cases.

IX. Clinics in Industries.—In big factories, industrial and commercial concerns, with a large number of employees, the services of the clinic staff are taken advantage of for vocational guidance, counteracting factors for fatigue and setting right other causes of maladjustment.

X. Mental Hygiene Societies.—These play an important part in doing useful propaganda work amongst the public, parents, teachers, employers and others, in bringing mental hygiene point of view in different fields of everyday activity. Such educative work is likely to help in decreasing the number of the maladjusted and in stabilising the mental health and activity of a community.

XI. Psychiatric social workers and schools for their training.—Psychiatric and mental hygiene in-

stitutions would not have reached such prominence in utility but for the untiring efforts of this class of workers. They assist the Psychiatrist in an intelligent investigation of the environmental factors and in putting into practice the recommendations made by him in re-adjusting the environment for the benefit of the patient. They are a well educated class, having courses in Psychology, Psychiatry, Sociology and so on, and belong to a paid service. Being mostly women, they are well adapted for sympathetic handling of delicate family relationships.

XII. Social agencies.—There are a number of social agencies financed by philanthropic people, for rendering assistance. Their work is well organised and co-ordinated so that there is no duplication There is a central exchange and through its help, information about the social and financial service rendered to any family by any one agency, is furnished for the benefit of the other. A few of the agencies are the following :—Red Cross Society, Children's Aid Society; Child Welfare Society, Society for the Prevention of cruelty to Children, Family Welfare Society, "Big brothers", "Big sisters", Y.M.C.A., Y.W.C.A., Salvation Army, Boy Scouts, Girl Guides, Legal and Bureau, Jewish Welfare Society, Catholic Charities and so on.

The combined efforts of these various institutions and welfare societies, have been fruitful in bringing timely aid to the mentally sick, in making them comfortable in hospitals and other institutions, in guiding wayward children in proper paths and advising parents and others in the bringing up of their children and wards to become useful citizens, healthy in body and mind.

SOME OBSERVATIONS ON ECLAMPSIA

By P. RATNASAMY, B.A., M.D.

The following notes are based on an analysis of 98 cases of Eclampsia for the year 1926-27. It is not a treatise on the subject; only certain aspects of the disease having a local interest are discussed.

A glance at the maternal mortality figures for England and America shows how far behind we are in Madras in improving maternity conditions. Prof. Stroganoff quoting Jaret Campbell for England and Wales during 1919—22, gives a maternal mortality of 41% while for America De Lee says that 25,000 women die annually during child-birth giving a mortality of 1%. This last figure Prof. Stroganoff thinks to be an astounding figure. In Madras, the statistics of Government Hospital for Women and Children for the year 1919—22, is 3·0%. Comment is needless. Some might think that 2·3% is a great gain over the past. Though the hospital accommodation, technique of operation, etc., have all improved yet there is no appreciable decrease in maternal mortality from the year 1910, at which year it was 2·3%. This figure is, in spite of the fact that in certain complications as in eclampsia, septicaemia, etc., the mortality is now considerably less, almost 50% of what it was before. A more careful analysis of the causes, shows that the main toll is derived from the consequences of prolonged labour and toxaemias of fregnancy. The remedy lies in antenatal work the efficiency of which is not up to the mark in the City of Madras.

During the period 1922—26, there was an eclamptic incidence of 1·73%. This is a very high rate; there

being only that of Lichenstein, *i.e.*, 2·68%. In a paper read at the meeting of Roy. Soc. Med. Prof. Stroganoff *records the gradual fall in death rate in eclampsia. In* Germany the fall is from 50·25% to 12·8%. In United States the fall is from 22% to 13%. In Japan from 34% to 20%. Prof. Stroganoff own statistics show that he had a gross mortality of 2·6% and a reduced mortality of ·3%. The gross mortality in Government Hospital for Women and Children (Madras) is 10% and a corrected mortality of 7·5%. Though our mortality is less that in other centres, yet we have not reached the ideal of ·3%. Prof. Stroganoff *concludes that the mortality among eclamptic* patients who are neither neglected nor injected must be about zero.

In Madras, eclampsia is more prevalent during the second half of the year, the maximum incidence being in the month of October and November when nearly 25% of the cases occur. Next come the months of June, July and August with an incidence of 10%, 7% and 7% respectively; thus showing that it tends to be prevalent more commonly during hot damp months. This observation is similar to that of Whitridge Williams.

There is a relative preponderance of incidence among Mahomedan women, next come the Hindus and lastly Indian Christians and Anglo-Indians. In fact there was only one Anglo-Indian case for the year 1926 (a doubt is expressed in the note whether there was no pre-existing nephritis) in spite of the fact that the diet of the Anglo-Indian contains more protein than the others. It is not the intention of the writer to blame any community for obvious reasons but only to state the facts and deduce a scientific conclusion, *i.e.*, that eclampsia is largely a preventible condition attained by observing the laws of Hygiene.

As regards the clinical varieties met with there seems to be two types; the first, *i.e.*, the oedema albuminuric (nephritic) type and the second the comatose-non-œdematous (hepatic ?) type. Between these there are various grades. It may be perhaps too early and preposterous to group them separately for want of more pathological and clinical data but it serves the attending physician an important clue to prognosis; the comatose type being mere fatal than the œdematous type. It is in this comatose type that Insulin, Glucose saline, Parathyroid and a test of remedies have been tried from time to time with no benefit; in this type of affection the routine treatment is of a limited value. For want of a fuller data we shall not have the discussion at this stage. It is not to my purpose to discuss fully the other factors in prognosis such as blood pressure, etc.

There is now no difference of opinion as regards the attitude of the obstetrician towards labour in eclampsia; a strictly conservative attitude towards labour is advocated and also practised. The fact that eclampsia can be successfully treated in early months and the pregnancy allowed to go to term is itself a very strong argument against those who advocate the "emptying of the uterus" as if the contents of the uterus were the only cause for eclampsia. "Accouchement force" is never practised but when once labour has set in there seems to be no objection to operative measures if they are indicated; thus caesarean section, for a case of contracted pelvis with head not fixed, is not contraindicated in an eclamptic. The main objection is against inducing labour artificially.

The writer does not propose to discuss the treatment of eclampsia in detail. The main lines of treatment are those indicated by Professor Stroganoff, with modification

to suit the local and individual conditions. Morphia, Mag. sulph. veratrone, colon irrigation and starvation are the main lines of treatment in Government Hospital for Women and Children. Gastric lavage advocated by the Dublin school is not followed in Government Hospital for Women and Children and chloroform is occasionally used as an unavoidable evil in spite of the fact that chloroform is used in the routine of Prof. Stroganoff's treatment with very good results. Mr. Aleck Bourne rightly observes that the nightmare of chloroform poisoning has not yet left the English obstetrician's mind in spite of its continued and successful use by others on the continent. Veratrone is highly praised by the Madras obstetricians for its value in reducing the blood pressure In a paper contributed, by Lieut.-Col. Hingston and Dr. A. Lakshmanasami Mudaliar, to the Indian Science Congress, Lahore, 1927, the following paragraph appears : "Since 1922 we have used veratrone the active principle of veratrum viride to reduce blood pressure; 1 c.c. of veratrone (P. D. & Co.) is given subcutaneously if the blood pressure is above 140 mm. Hg. Syst. and ½ c.c. if it is below. We have however given as much as 6 c.c. of veratrone in 24 hours with no bad results. The injection of veratrone produces a rapid and considerable fall in blood pressure and a corresponding fall in pulse rate. Occasionally the blood pressure falls very suddenly and alarming symptoms occur but these are rapidly overcome if the patient is given an injection of stychnine and later glucose and saline per rectum. During an investigation carried out in Government Hospital for Women and Children to study the action of veratrone the following observations were made :—

1. Veratrone takes about 10—15 minutes to act; there being no fall of blood pressure before 10 minutes.

2. The first sign of its action is manifested by the patient having nausea, retching and occasionally vomiting associated with a slight amount of restlessness and a sinking sensation in the epigastrium.

3. The blood pressure rapidly falls within the next 10—15 minutes reaching its lowest limit between ½—¾ hour after injection.

4. It is unnecessary and sometimes dangerous to use 1 c.c; the dose of ½ c.c. being quite sufficient to produce the same beneficial effect without any harmful results being encountered.

5. The action of veratrone is temporary lasting for about 2—6 hours after which the blood pressure shows a tendency to rise though the subsequent maximum attained is not generally as high as the original reading.

6. It is necessary and safe for the attending physician to remain with the patient for at least ½ hour after the injection.

Paramore adds one more effect to veratrone, *i.e.*, that it depresses the activity of striated muscle the tone of which is a very important factor in the maintenance of blood pressure.

Infant mortality in Eclampsia.—Leopold records a fall of death rate from 55% to 18·6% after the inception of the prophylactic treatment of Stroganoff. Waldstein gives a mortality of 10% in 117 cases. Prof. Stroganoff and Prof. Okintchitz working in the lying-in-hospital of Prof. Sneginereff record an infant mortality of 22·8% and a maternal mortality of 7·9% among 176 cases. In Government Hospital for Women and Children, out of 12,733 cases (1922—26) 221 cases of eclampsia, occurred with a

maternal mortality of 10% and an infantile mortality of 35·72%. Now, it is well-known that babies born of eclamptic mothers show a greater post-natal mortality. Consequently the total mortality of infants including post-natal mortality works out for the years 1926-27 (about 85 cases) as follows :—

Still births including macerated fœtus	....	32
Died within 10 days after birth	....	16
Total	....	48

giving gross mortality of 56·5%. No comment is needed on the above figures.

A discussion of the various theories put forward regarding the etiology of eclampsia is beyond the scope of this article. The bacterial, the syncytial, the placental and other theories have had their day. Paramore puts forward the view that "eclampsia is due to a primary failure of the excretory organs (liver and kidneys) as a result of ischaemia from a too great compression of the organs." In the discussion that followed Dr. T. Watts Eden observed that he could not agree. He added that if Dr. Paramore could experimentally produce eclampsia by raising intra-abdominal pressure or if he could show that raised intra-abdominal pressure at times caused eclampsia apart from the pregnant state he would go far to prove his case. To his mind the occurrence of post-partum eclampsia might be said to know the bottom out of the mechanical theory at a flow. The most accepted theory is the metabolic theory which supposes the whole condition to be due to a toxin elaborated in the maternal system due to the pregnant state ; the toxin upsetting the metabolism of the maternal organism in various ways.

The way to control this frightful disease lies in better prophylaxis during pregnancy, standardisation of treatment, a trained staff and above all research all of which require money. When in other countries physicians are uniting their efforts to heave the cast out of rut it shall not be said of Madras that we refused to give a helping hand—" *Labor Omnia Vincit* ".

In conclusion I have to thank Lt.-Col. Hingston and Dr. A. Lakshmanasamy Mudaliar for permitting and helping me in studying the action of veratrone in their clinic and also for permitting me to use their hospital statistics.

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Rejuvenation craze is rapidly spreading in Paris and several 'beauty specialists' are carrying on a very profitable trade.

" No one is ugly who does not wish to be " is the daring slogan of one specialist. " A woman can and should be wooed until she is 75 " is another slogan.

A third, saying women are flowers, describes himself as a " horticulturist of women ".

According to an authority women live longer than men. In the 1921 census of England and Wales it was found that there were 110 Centurians, of whom 80 were women and 30 men.

THE SCOPE OF ANATOMY AND A DEPARTMENT OF ANATOMY

By Dr. R. KRISHNA RAO, F.R.C.S.

The Rockfeller foundation have been publishing during the last six years a series of volumes on the methods and problems of medical education. Again, of late, opportunities, though restricted, are being afforded to the members of the service for pursuing further studies abroad in Europe and America and several of them have returned with first-hand information of new buildings, new methods of teaching and new ideas. There is the poignant feeling at the outset that here (at any rate, in this Presidency) we are several decades behind the times. It is not the purpose of this paper to discuss the reasons which have contributed to this regrettable lack of progress. However, there need be no despair; there are yet, brilliant hopes of the future if only we anatomists put forth sustained intensive and individual efforts. I venture to indicate hereunder the principal lines along which improvements could be effected in the department in conformity to the latest ideas.

Anatomy, according to Weed, was defined in the west, in the middle of the nineteenth century as the science concerned with the structure of the vertebrate body, but devoting its efforts largely to the human aspects of the subject, but the present day conception is that it is one of the major biological sciences having to do with life processes as these affect the structure (and to a less extent the function,) of vertebrates with very special emphasis on man. Here, however, till very recently, anthropotomy (human anatomy) was the subject and the only subject that

engaged the attention of the teacher and the student alike. I well remember that as a student of the early part of the second decade of the twentieth century, I had heard very little of morphology and comparative anatomy, still less of embyology and least of anthropology. It is now intensely realised that no intelligent, rational and scientific study of the subject is possible without a knowledge of the ancillary subjects.

Detailed and graphic accounts of anatomical buildings in the various institutions of the world with plans and the nature of the material or materials used, have been dealt with in the publications referred to. Expense appears to have been no consideration whatsoever, as evidenced by the lavishness, immensity and grandeur of the architectural design of a few occidental institutions Buildings are generally planned to meet requirements It is therefore necessary to have an idea of the scope and extent of the Department. It is hoped and expected that adequate building accommodation will come into existence very soon in India.

Sub-Divisions of Anatomy.—The importance of general biology has been greatly stressed by Theodore Huzella of the Royal Hungarian Stephen Tisza University of Debreckzen. He says "The systematic teaching of general biology is regarded as a question of prime importance in medical education as a vital need of the medical student. Being thoroughly convinced that general biology as propaedutics is the only solid basis of medical study, I have taught it for five years and although it is not a required subject, the spontaneous interest which my students take in these lectures has induced me to enlarge their subject-matter from year to year, to plunge into general problems of biology and to extend the sphere

of the research work of the department to problems and experimental methods of general biology."

Such questions are treated as general cytology, the principles of plant and animal life, genetic problems of organisation, differentiation, adaptation, correlation, symbiosis and parasitism, considerations of sociology, theories of evolution, variation and mutation and the theories and facts of heredity.

The teaching of the so-called scientific anatomy crammed with desultory biological ontogenetic, phylogenetic and comparative anatomical considerations and speculations of no immediate importance is a source of confusion for most students. On the other hand it seems very helpful to intersperse its particular chapters with the corresponding data of organogenesis and histology of the organs. This appears to be indeed supererogatory.

Embryology and Histology.—The teaching of embryology is associated with histology in many western countries. Here, histology is learnt with physiology. To economise space and equipment, both the subjects which involve the use of microscopes and the holding of practical classes may advantageously be combined and handled together by a separate member of the staff. As the subject of embryology is one in which epochal advances have already been made and as it is one that furnishes still a wide field for further investigations, adequate accommodation has to be provided for it by way of

(i) A well-lighted and well ventilated class room for holding practical classes.

(ii) A museum for instructional purposes, either separate or as a part of the anatomy museum.

(iii) A private laboratory for storing material, chemicals and appliances required for the department and for carrying on work.

Comparative Anatomy and Morphology.—This is a subject that cannot be ignored. It throws a flood of light on the study of evolution and many anatomists of the present day are concentrating their attention on the problem of evolution, about which conflicting views are held even at the present day. The equipment consisting as it does of mammalian skeletons is of an expensive nature and ample space has to be assigned to exhibit them in suitable show-cases. The anatomy department need only concern itself with mammalian forms with but occasional digressions into other classes. In the Carmichæl Medical College, Calcutta, there is a taxidermist attached to the department

Anthropology.—Anthropology (especially physical anthropology and human palaentology) has now been recognised as an important sub-division of the great science of anatomy. It is a branch of study that has been assuming greater importance every year. It is a subject for which readerships have been instituted in all the principal universities. The knowledge is essential for the correct comprehension of man's place among the primates, differentiation in human races, individual variations, etc. Instruction in physical anthropology is given to students of anatomy in a few places. Dr. Bardeen of the Wisconsin University requires each student to furnish a few simple anthropometric measurements of his own body, on beginning work in gross

anatomy. There are valuable and abundant collections in several universities. Pre-eminent among which is the Hamann museum of comparative anthropology and anatomy attached to the Western Reserve University School of Medicine (the Mecca of Anatomists) which includes about 1,000 complete human skeletons of known individuals with anthropometric, photographic, clinical and personal data, mostly from the hospitals attached to the school besides 600 mammalian skeletons, many more mammalian skulls and a good number of complete animals (an unrivalled wealth of material). In this connection, I fervently appeal to all the anatomists of the presidency to vigilantly and promptly start the work of collection of skeletons of *known data*. I am fully conscious of the fact that one will be confronted with difficulties at the outset. It certainly presupposes the willing co-operation of such as are concerned in sending the cadavers to medical schools and colleges; again, the officer must have at his disposal a plot of ground where he could bury the bodies, label them, exhume them later, collect the bones and articulate. The process is indeed a slow one but has nevertheless to be carried on till such time when one or more institutions are equipped with up-to-date macerators and machines for the expeditions carrying on of the work. This section again is a space-consuming one requiring as it does roomy cases for holding the large number of skeletons in addition to a small laboratory for carrying on anthropometrical work. The Medical College, Madras, has to be congratulated on having made already a start in this direction, and on owning a complete set of anthropometrical instruments.

X-ray plant.—No department of anatomy can be declared to be complete without Roentgenological installation. The apparatus may be said to constitute an

essential necessity for being used for experimental purposes as well as for instruction. "Anatomy should be looked on as a living discipline taught not as a dead conception." Dr. S. E. Whitnall of the MacGill University Department of Anatomy Montreal, writes that from the outset he impresses upon the student that he is dissecting the dead because that is the best means available of understanding the form, structure and mechanism of the living body in treating which his life-work is largely to be spent. Radiography has revolutionised the conception of the anatomy of the viscera (particularly hollow viscera) obtained from the study of cadavers. The architecture of bones, the study of the epiphyses, the movements and peristalsis of the stomach and intestines, the gross details of the heart-beat and of the diaphragmatic and respiratory movements can be seen by the student who can therefore be enabled to compare the anatomy as revealed by this method of examination with his studies of the same organs in the dissecting room. An installation should comprise, *inter alia*, an upright fluorescent screen stand for examining the anatomy of the heart and lungs in the living subject, X-ray couch fitted with an under-couch tube box for making examination in the prone position, an overhead tube stand for radiography, viewing cabinets for examining radiograms and stereoscope for the demonstration of X-ray photographs. Dark room for photography is included in the above and there is therefore no need to have a separate one. In the University College, London Department of Anatomy presided over by Professer Elliot Smith, the Doyen of Anatomists, a room has been set apart for the cinematographic study of animal movements.

Aquaria and vivaria.—It has been suggested that in addition to the usual laboratory mammals provision

should be made for housing monkeys with special room for such anthropoids as may be needed In some laboratories large breeding colonies are maintained. The anatomist is expected to become an experimentalist, if need be, for the solution of his problems.

Library.—It has not perhaps been sufficiently realised here that, without a fully equipped library, it is well-nigh impossible to pursue any research worth the name. The departmental library must have its own complete set of books, reviews, etc., ready at hand for purposes of reference whenever required. The usual practice that obtains in many institutions here is that the books are stacked in the central library. Such an arrangement is certainly disadvantageous in that the staff is committed to the mercies of the librarian, who more often than not, cannot be had when wanted. All books relating to anatomy and allied subjects must be handed over to the department. The same holds good for other departments as well. The departmental library must have besides text-books, all standard works of reference atlases, anatomical monographs, complete sets of anatomical periodicals with past years' numbers. A fund of the latest and most valuable information can be had of continental authorities Such books and periodicals are in German and French languages. Keen students who are desirous and ambitious of keeping themselves abreast of the times should take the trouble of acquiring a working knowledge of the languages. At Bombay, Mr. Jadhav has been giving instruction in German to medical students and qualified doctors with a view to enable them to drink directly from the "fons et origo."

Gross Anatomy.—Till now the ancillary sections only were dealt with. The subject of gross anatomy, the

central luminary around which the satellites revolve is needless to say the basic subject. Its importance may be lost sight of in exploring the intricate maze of its ramifications. It has to be emphasised and repeatedly too to the student that anatomy has to be learnt not from books but from the massive books stretched out on the dissection tables. It is therefore of the utmost importance that not only should there be a plentiful supply of bodies, but of well-preserved bodies. It is not the quantity but the quality that counts.

It is a matter of common knowledge that an appreciable number get into a state of partial decomposition, the muscles become flabby and the parts discoloured ; in some, the colour injection settles in masses vitiating thereby the usefulness of the part ; in still others moulds settle and rapidly invade the deeper tissues ; others again get dried up. Anatomists all over the world have been busy finding out the best and most economical method of maintaining the bodies supple and moist for long periods.

Embalming and Storage.—The method of embalming and storage vary in different climates ; what may be found suitable in a country in the temperate zone may not be so in a country in the tropics. In most cold countries, the cadavers are injected with carbol-glycerine-alcohol solution and stored in alcohol damps. Davidson Black of the Peking Union Medical College avers that storage in oil after embalming is the most satisfactory method of preserving cadavers over long periods of time. For purposes of oil storage two concrete tanks with heavy counterweighted teak lids were constructed (inside dimensions approximately 7 ft. x 2 ft. with a depth of 4 ft.). From the bottom of each a drainage tube provided with

a metal stop-valve leads to an open floor trap. It became necessary after trial to line each tank with sheet-lead since the oil in time was found to seep through the concrete, despite its special finish.

A good grade of mineral oil is used for storage. It is non-volatile, almost odourless and colourless and is non-inflammable at ordinary temperatures. In Calcutta the bodies are embalmed as at Madras and other places with the usual formalin-arsenic and red lead solution. The bodies are said to be smeared with castor-oil in order to prevent drying up of the parts. From my personal experience I have found that smearing with castor oil and the cheap ground-nut oil is not effective in preventing drying up. Glycerin-lyes from soap-factory were used during war-time when Glycerine was expensive and it proved also a failure. The Singapore method of embalming in the tropics described in the Journal of Anatomy of January 7, 1924, was tried in the Madras College. The parts while remaining no doubt in a good state of preservation become so hard and friable that they are unsuitable for purposes of dissection. The method can be therefore declared to be a failure from the point of view of dissections, but it is useful where hardening *in situ* is necessary, say in the preparation of museum specimens. The method adopted in the Colleges at Madras and Vizagapatam and the other Schools of the Presidency is but too well-known to need mention. The method in use in the Campbell Medical School, Calcutta, is rather elaborate; nevertheless it deserves trial. Four solutions are used as described hereunder :—

Solution A.	Formalin 8 oz. Aqua 2 pints.	Soon after death thro' the femoral artery.

Solution B.	Acid Arseniosum lb. ii. Sidi. Bicarb lb. i Aqua 5 pints.	3 pints of this solution are injected 24 hours after the first injection.
Solution C.	Hydrarg. Perchlor dr i. Spts Rectificatus 8 oz. Aqua 8 oz.	The remaining 2 pints of solution B are mixed with solution C and injected thro' the femoral artery 24 hours after the second injection
Solution D.	Glycerine 4 oz. Vermilion 4 oz. Plaster of Paris 8 oz. Aqua 3 pints.	Solution D is injected 24 hours after the 3rd injection thro' the femoral artery.

It will be admitted on all hands that, despite care, the bodies dry and shrivel up especially in hot and windy weather. It is certainly possible to maintain the bodies in a fit condition by the copious use of glycerine and by wrapping up the parts in gauze steeped in preservative loton. In an institution where there is a large number of bodies to be dealt with, the expense is bound to be considerable. I would request the anatomists in various parts of the Presidency to let me know which is the best and cheapest method from their individual personal experience.

Major Anderson has been in favour of the use of zinc covers for the bodies, the edges of which fit into grooves cut out on the four sides of the table.

Weak Carbolic lotion is poured in the grooves. This is said to be the method in use in St. Bartholomew's Hospital, London. While the principle of having an air-tight lid for the cadaver is sound in theory, it is not however found so effective in practice, my excuse for dwelling at length on this aspect of the question is because of the firm and cherished conviction of mine that the time

spent on dissecting an ill-kept body is a veritable waste. The growth of mould is a bugbear that has to be combated by the generous exhibition of Carbolic lotion, perchloride lotion, etc.

Tables.—The dissection tables used in the Vizagapatam College are made of teak-wood; they are not lined with zinc sheeting as at Madras. There is again no central perforation to drain off the exudates. The tables get water logged and permeated with oil. Considerable time and labour have to be expended in keeping the tables clean and dry. The zinc-lined tables which certainly are an improvement on the former, are expensive in the long run as the lining wears out and has to be renewed almost every year. The subjacent wood gets damaged in course of time. During my recent visit to Calcutta, I found that marble slabs with a central perforation and groove mounted on iron stands are used in both the Colleges there. The material, though expensive looks neat and tidy and is easily kept clean. Incidentally I may mention that the floor of the anatomy buildings are lined with marble and the walls are dadoed with glazed tiles. The initial cost may be high but the recurrent expenditure is bound to be negligible, marble appeals to me to be the ideal material for use especially in a department where great care and attention have to be bestowed on the maintenance of cleanliness and suppression of odours. The prevailing method of disposal of the refuse and rubbish of the department is by carting them on to the crematorium where they are buried. If space is available, an incinerator for the purpose may be constructed in a corner of the building.

Ossuary.—No limit can possibly be set to the number of bones that the department can have and no

number can be said to be superfluous. For purposes of instruction about a hundred sets may be deemed ample but for purposes of investigation of any kind, the larger the number, the weightier will be the findings. The paucity of the bones in any department is but to be attributed to lack of facilities as a plot of ground, a macerating tank, etc. The old veteran anatomy attendant of the Madras Medical College used to tell me that bones of the preserved bodies used for dissections are no good, as, after maceration they assume a darkish hue and that bones of ivory finish can be had of P.M. bodies and that the best cleansing agents are ants.

Class Room.—The amphitheatre type is the one of universal choice. Provision should be made whereby the room could readily be darkened for the exhibition of lantern slides.

Museum.—I can do no better than quote the ipsissima verba of Davidson Black's excellent account of the ideal museum.

"The value of a well-equipped and thoroughly organised anatomical museum as an aid and stimulus in both teaching and research is difficult to over estimate. Too often in the past, it has been the custom to carry on anatomical instruction by didactic rather than by museum methods....................The museum must be no mere departmental appendage; rather, it should be a centre of departmental activity as well for students as for the staff. Here the student should be able to retire for study at work-tables conveniently placed near the demonstration cases in which is displayed the material to which they wish to refer. Here frequent conferences should be held by staff members and small student

groups for the discussion of problems arising in the course of laboratory work. A museum, to adequately fulfil its function should therefore occupy ample and well-planned quarters which should include storage space sufficient for a large amount of prepared material space for demonstration cases where these may be displayed for closer study and working space for individuals and for group conferences." The museum specimens need not necessarily be kept in a separate place ear-marked for it. They may be arranged all round the dissection halls where they will be within easy reach for reference by the students during the course of their practical work. Framed diagrams of dissections and other regions may be hung on the walls all round. The specimens may usefully be classified in such a manner as to provide for instruction to post-graduate students preparing for degrees and diplomas in various subjects. The department ought to be able to give special courses of an elective nature besides the obligatory courses for

(*i*) Future specialists in ophthalmology otorhinolaryngology, dentistry, psychiatry.

(*ii*) Students preparing for B. Sc. Degree in comparative anatomy and anthropology.

(*iii*) For massage students, graduate nurses, artists and students in the faculty of education preparing for the diploma of teachers of the deaf and dumb.

I have thus endeavoured to outline briefly the salient features that have to be borne in mind in any scheme of reorganisation, development and expansion of the department of anatomy. An up-to-date laboratory planned and organised along these lines would contribute profoundly to the advance of anatomy. As in

these days of rapid strides and advances it is hardly possible for any one to be omniscient, let me take the liberty of commending to the consideration of the members of the cadre specialisation in one of the sub-divisions as morphology and comparative anatomy or histology and embyology or physical anthropology when they go abroad for further study. The institution will thus have on its staff specialists representing the various subdivisions of the subject.

It is my earnest wish that concrete proposals for the improvement of the department along the lines referred to above should be submitted to the government through the Surgeon-General at an early date. There should be for the Presidency at least one central properly constituted anatomical laboratory preferably in the metropolis providing adequate opportunities and facilities for training and research to all the anatomists.

I should like to take this opportunity of suggesting to the anatomists of the Presidency the desirability of holding a conference at least once in the year with a view to exchange ideas, to discuss the methods and problems of improving the teaching, to organise co-ordinated research and to suggest lines of research and to read papers. The conference may conveniently be held during the Christmas vacation. I consider it unnecessary on my part to expatiate at length on the immense advantages that would be derived by such frequent contacts. I appeal to the anatomists to come forward with constructive proposals to make the conference a reality and a success.

A certain patient remarked "Doctor, when I cough, "flames" (phlegm) come out of my mouth". Human volcano!

FILARIASIS*

BY K. P. MENON, L.R.C.P., & S., ETC.

Introduction.—Filariasis has received least attention of all the tropical diseases although it is fairly extensive in its distribution. It is probably because filarial diseases have never taken an epidemic form nor have they been directly responsible for high mortality; but filariasis, in endemic regions, has caused a great deal of social unhappiness from the nature of some of the manifestations of filarial diseases.

Very little has been added to the knowledge regarding the pathology of filariasis, filarial periodicity and treatment. Sir Patric Manson was the pioneer in this field of studies and he found out the mosquito intermediary in the transmission of the human filariasis.

Under the term filariasis is included a variety of clinical manifestations directly or indirectly due to the infection by *Uchereria bancrofti* (*F. bancrofti*).

Etiology.—There are three factors to be considered:

(1) The parasite.

(2) The intermediary host, *viz*., the mosquito.

(3) Accessory factors.

(1) *The Parasite*.—*Uchereria bancrofti* or *F. bancrofti* as is more commonly known is a periodic filaria, *viz*., the *microfilariae* appear in the peripheral blood of the host only at certain hours of the day. Generally the microfilariae begin to appear slowly and gradually after

* A paper read before the Madras Medical Association in May 1930.

midday and reach the peak by midnight and then gradually begin to disappear until daybreak, between 8 a.m. and 12 noon they are usually absent from the peripheral blood unless the infestation is very high (over 500 microfilariae per 10 c. mm. of night blood).

In most regions of the world where filariasis is endemic the nocturnal periodicity is observed, but in the Pacific Islands, Fiji, etc., the filaria is non-periodic. Morphologically the non-periodic and the periodic filariae appear identical. Some authorities explain the periodicity by the biting habits of the mosquito intermediary, *viz.*, the *culex fatigans* and *anopholines* in countries where nocturnal periodicity is observed and *Aedes pseudoscutilaris* in the Pacific Islands where non-periodic filaria is present, the last mentioned species of mosquito being a day biter. Various explanations are given for the periodicity, *e.g*, disappearance of the microfilariae into the internal organs, such as the lungs during the day time; such disappearance being caused by the variation in the carbonic acid content in the blood during sleeping and waking hours of the host; influence of day light on peripheral vessels, etc. Clayton Lane has recently brought a theory of cyclic parturition and cyclic destruction every 24 hours; most of these theories seem to be speculative, none of them based on any experimental observations. During the experimental work on filariasis at the King Institute, filarial periodicity was observed in the crow filaria (the common crows in and around Guindy were found infected with a filaria of a different genus and species from F. bancrofti.) But when the bird was chloroformed the peripheral blood which was previously negative showed numerous microfilariae. It is quite likely that some change either anatomical or biochemical or both is caused in the peripheral circulatory system

by the anæsthetic to facilitate the free circulation of the microfilariae. An analogous process may be taking place in the human hosts during sleep.

The microfilariae can only die out so long as they remain in human blood ; but if a suitable mosquito intermediary is present the ingested microfilariae undergo metamorphosis in the mosquito in 10—20 days varying with temperature and moisture. The metamorphosed infective larvae male and female when brought in contact with human skin readily penetrate through the skin and find their way to the large lymphatic channels where they mature and the impregnated female lay their embryos which get into the blood-vascular system. Whether the infective larvae come in contact with the human host through mosquito only or whether they can reach man through other medium, like water, requires further study. It is observed that the larvae can live over three hours in natural water. Whether man gets infected by cutaneous or oral method through contaminated water, has yet to be proved. It is found that the filariasis incidence is decreased in filarial endemic places side by side with improvement of water supply and drainage, although the mosquito density remains practically the same.

(2) *The mosquito.*—Although there are many species of anophelines (over 40 in India) only a few are efficient carriers of malaria. Similarly in filariasis although there are hundreds of species of mosquitoes of all kinds only a few can act as effective carriers of filaria. In malaria work it has been found that anophelines that breed in saline water are more efficient carriers than the pure fresh water breeders with a few exceptions. So in filaria transmission too, certain mosquitoes, *viz.*. *C. fatigans*,

Aedes pseudoscutillaris, *A. rossi* are better carriers than others. *C. fatigans* is a common cesspool-breeder where there is a high saline content. *A rossi* breeds in Saidapet in fresh waters, and *rossi* in Saidapet were not found infested with filaria. In Cochin and other West Coast places where high incidence of filariasis is present *A rossi* is also an important carrier and the *rossi* breeds in brackish waters in those localities. In Saidapet nearly 35% *C. fatigans* were found naturally infected, out of a dissection of nearly 2,000 mosquitoes, during the months of October 1929 to February 1930. In a collection of nearly 2,000 mosquitoes from houses in Saidapet during the said period only 40 *A rossi* were caught and 29 *A. scutellaris.* The rest were *C. fatigans*, none of the *A rossi* were infected; 2 of the Aedes showed immature forms of the parasite. *C. fatigans* is, therefore, found to be the carrier in this part of the country.

(3) *Accessory factors* in the causation of filarial diseases are pyogenic organisms such as streptococci, staphylococci and B. coli from septic focus in any part of the body.

Epidemiology.—Filariasis is strictly tropical in distribution. It is hardly met with beyond 30° North and 30° South of the equator. It is mostly met with in the coastal and riverine areas with moderately high temperature and high humidity. High humidity is an essential factor for the development of filaria. A temperature above 92° F. and below 75° F. is inhibitory to the development of filaria. Sunder Rao and M. O. T. Iyengar have recently shown that the temperature and moisture obtained during the monsoon time in Calcutta is the optimum for the development of F. bancrofti, *i.e.*, a temperature between 80° F. and 90° F. and the humidity

of about 90%. Under this condition it was found that the F. bancrofti could complete its development in mosquitoes in 10 days ; whereas in other seasons it takes 15—20 days and the infection rate and the infestation rate in mosquitoes are much higher during this period. Thus places like Cochin, with an average temperature between 80°F. and 90° F. during major part of the year with a high degree of atmospheric moisture, can maintain a high rate of filarial infection in mosquitoes which repeatedly infect the human beings. This accounts for the high incidence of filariasis in Cochin and other places.

The availability of suitable mosquitoes and their breeding facilities are other essentials in the distribution of filarial affections. Overcrowded villages and towns without any adequate drainage arrangements will afford ample facilities for the breeding of culicine mosquitoes.

Pathology.—A thorough knowledge of the anatomical distribution of the lymphatic system is essential because the focus of mischief in filarial diseases is situated in the lymphatic system. The old idea was that elephantiasis and other manifestations of filarial diseases were produced by the *immature filarial embryos* blocking the lymphatics. This view is no longer tenable. The present view is that the blockage is caused by the infective larvae during their migration from the periphery to the large lymphatic channels, either in the small lymphatic channel or in a lymph gland ; or it may be that the frequent irritation caused to the lymph glands by the F. larvae during their migration, where there are chances of constant infection may cause the inflammation of the lymph glands ; it may also be due to the death of the parent worm in a large lymphatic channel and the irritation caused by the products of digintegra-

tion of the dead worm which may bring about cellular proliferation in and around the lymphatics and cause blockage. During the disintegration of the dead worm microbic invasion of the focus with pyogenic organisms such as streptococci, staphylococci or B. coli may take place. If there is streptococcal infection it will cause erysypelatous rash, acute lymphangitis and fever ; staphylococcal infection causes localised abscesses and suppuration in extremities and joints and B. coli infection intra-abdominal suppuration.

Long continued irritation due to death of the parent worm and repeated attacks of inflammation will cause obstruction and dilatation of lymphatics of the skin, lymyh stasis and formation of minute lymph cysts.

Filarial fever.—It is said that the periodic attacks of filarial fever is due to filarial toxins liberated during the laying of embryos, by the female parent worm, which takes place about once a month ; hence the periodic nature of this fever. Hamilton Fairley and Glen Liston have shown that the toxins of guinea worm when injected subcutaneously can produce *urticarial* rash and eosinophilia. In analogy to that, though experimental proof is wanting, Acton and Sunder Rao say that filarial toxin is responsible for *urticaria*-like rashes sometimes met with in filarial subjects and they have also noted definite esoinophilia in filariasis. Acton and Sunder Rao describe a phenomenon of kataphylaxia in filariasis, *i.e.*, a localised failure of tissue defence mechanisms as opposed to anaphylaxia which is generalised hypersensitiveness.

As a result of the kataphylactic process there is mesoblastic and epiblastic type of filariasis. The pathological changes produced by the *F. bancrofti*

either alone or in association with the secondary invaders (pyogenic organisms) may lead to the following clinical conditions :—

Filarial fever with adenitis, lymphangitis, phlebitis, thrombosis, thrombophlebitis, funiculitis and orchitis, hydrocele, arthritis, oophoritis, salpingitis, chyluria, abscesses, superficial or intra abdominal or intrathoracic fugitive lymphatic swelling and elephantiasis and many other conditions. In the mosblastic type around the lymphatic channel eosinophilic proliferation in response to the irritation caused by the filarial toxin when the female worm lays its embryos. In the epiblastic type the lymph stasis causes impairment of the defence mechanism of the surface layer of epidermis.

Clinical features.—Fever in filariasis is due to toxins of filaria. Fever and inflammatory signs may be the result of secondary infections.

In filarial endemic area 60 to 70% of people show microfilariae in the blood but do not suffer from disease ; but among those with filarial disease hardly 5% show microfilariæ in blood. The absence of microfilariae in the blood is explained by the impossibility of embryos to find their way to the general circulation when the blocking of the lymphatic is complete by the adult worm and the inflammatory process around. In those cases of filarial disease when the blockage is partial the microfilariae are found in blood.

Another possible reason is production of certain substances, in the body in response to the irritation caused by the parent worms or their toxins, which are lethal to the microfilariae. It is in the interest of the economy of filaria to be friendly to the human host. So long as

they don't cause any irritations both the parasite and the host do not suffer. In filariasis work at the King Institute C. G. Pandit, S. R. Pandit and P. V. Sita Ram observed that when serum from cases of elephantiasis was mixed with citrated fresh blood from persons whose blood contained microfilariae and incubated, the microfilariae were found surrounded by leucocytes which became gradually adherent to the microfilariae and eventually caused the death and disintegration of the parasite, within 18 hours, but death did not take place even for three days in control cases. In good positive cases death and disintegration was observed in 12 hours. The phenomenon is probably one of phagocytosis. This phenomenon known as "Adhesion phenomenon" was observed in 60% of cases in Saidapet out of a total of 120 cases.

In a house to house filariasis survey of Saidapet recently carried out by the King Institute the following facts were observed :—

(1) The signs of filarial disease and elephantiasis increased with age particularly after 40 years.

(2) The microfilariae rate is independent of age except for the first few years of life.

(3) This disparity between the incidence of filarial disease and microfilaria infection rate in different age groups suggests increased susceptibility to disease due to continued exposure to infection by long residence in the endemic region.

(4) The microfilaria infection rate in both sexes is the same.

(5) The filarial disease incidence is greater in males in the age group before 40 ; but after 40 it is about the same.

(6) The microfilariæ rate in elephantiasis cases is about 2%.

Treatment—Prophylaxis.—This consists in measures directed against mosquitoes particularly Culex *fatigans* and Aedes ; improvement of drainage and water supply. Measures against the bite of mosquitoes may mitigate the incidence considerably.

Curative.—Early cases may benefit by leaving the endemic area if practicable. Drug-treatment has been so far quite unsatisfactory. Vigorous saline purgatives are of immense value in very early stages. Various preparations of antimony, arsenic, bismuth, etc., were tried without any appreciable benefit. Any drug that is given should attack the parent worms which are lodged in the large lymphatics where it is very difficult for the drug to reach in sufficient concentration. Examination for septic foci in the skin, throat, mouth or intestine and the treatment of the same have resulted in the improvement of filarial diseases. Autogenous vaccines when a septic focus can be detected or stock streptococcal or staphylococcal vaccines have been tried in recent years with variable degree of success. At the King Institute 3 strains of streptocccci were isolated from elephantoid tissue and a stock vaccine made out of these stains was tried on over 200 filarial patients of all kinds with a certain amount of beneficial results. In selected early cases with fever the results were more encouraging. In old standing cases little or no benefit was observed.

A lively discussion followed in which most of the members present took part.

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Farmer (to chemist) "Now be sure and write plain on them bottles which is for the cow and which is for my wife. I don't want nothin' to ' appen to the cow " (*Australian Journal of Pharmacy*).

A lady asked a physician whether snuff was injurious to the brain.

" No " said he "for any body who has brains never takes snuff ! " (from the *Medical Review of Reviews*)

PRESENT POSITION OF THE KALA-AZAR TRANSMISSION PROBLEM.

By Dr. K. V. KRISHNAN,

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(*Continued from the July number*).

Is there or is there not an infective stage of Leishmania donovani.—Earlier it was pointed out that this is the second of the three important questions that awaits a correct solution, in connection with the transmission problem of Kala-azar. About this question again, as about the first, our knowledge is anything but complete And before proceeding to discuss which one of the many different forms of *Leishmania donovani* is likely to be the infective stage it would indeed be highly helpful if a brief description is given of the various forms met with in different situations such as the culture tube, sandfly and infected host

A classified list of the different forms of Leishmania donavani together with a brief description of each form.

Leishman-Donovan body.—First described by Leishman and Donovan (1903). Shape-round, oval, or torpedo-like and consists of a mass of cytoplasm, a spherical nucleus and a rod shaped parabasal.

Size.—Varies with the form; the round form is about 2 to 3 u in diameter, the oval form 2 to 4 u by 1·5 to 2·5 u, and the torpedo form 2 to 3 u by 1 to 1·5 u.

Occurrence.—The above three forms of the L. D. body are the only forms definitely known to be present

- *Leishmania donovani*..
  - Aflagellate or round form.
    - Common. — Leishman-Donovan body (round, oval or torpedo shaped).
    - Rare ... — O bodies of Row. Globular bodies. Sexual forms. Coccal forms. Multiple segmentation forms.
  - Flagellate or leptomonad form.
    - Common. — Early flagellation forms. Short stumpy forms. Fusiform multiplicative forms. Mature flagellate forms.
    - Rare ... — Spirochaete like forms. Tiny round forms with long flagellae.

in infected man and animals. They are found almost invariably inside the macrophage cells of blood and tissues. In smears made from spleen or liver puncture material they may occur extracellularly In a certain number of urines and faeces from Kala-azar cases, bodies, morphologically resembling L. D. bodies, have been demonstrated.

In *P. argentipes*, whether naturally or experimentally infected, undoubted L. D. forms have never been found. In a few of these flies, however, suspicious looking L. D. forms have been seen.

In cultures of N. N. N. of over ten days, forms resembling L. D. bodies are not rare. Whether these represent viable or degeneration forms it is difficult to

say. In cultures on solid media the tendency to form round aflagellate forms appears to be greater. In media that are drying up or exposed to temperatures slightly higher than the optimum, these forms seem to predominate also.

Resistance.—The L. D. body is not very resistant to adverse conditions of temperature, medium, P_h, chemicals, excretions, secretions, etc. Although unable to live except under optimum conditions for any great length of time, it is considered to be relatively more resistant than the flagellate or any other form.

Infectivity.—Of all the different forms of *L. donovani*, the infectivity of the L. D. body is the highest. Many laboratory animals, such as Monkeys, Dogs, Jackals, Rats, Mice, Flying foxes and Hamsters have all been successfully infected by inoculation of these forms. In the case of Hamsters even oral administration of L. D. bodies has caused infection. The number of failures to infect animals with these forms is not as great as that obtained when the flagellate forms are used. Man, Cat, Guinea pigs and Rabbits, alone remain yet uninfected.

"O" bodies of Row—First described by Row (1922). Shape and size - extremely small, globular or torpedo-like bodies measuring about 2 u or less in diameter and with a relatively large mass of nucleur chromatin. They differ from the L. D. bodies not only in size but also in not having a visible kinetoplast, which generally is either absent or fused with the nucleus.

Occurrence.—Although they were first described as being usually present in old cultures of *L. donovani* of 3 to 6 weeks duration, they have since been shown to

occur in younger cultures (7 to 10 days old—Christophers), in the blood and tissues of infected animals (Row) in the mid-gut of a certain number of sandflies (Shortt), in cultures of *L. donovani* on solid media and in fact under practically all sorts of adverse conditions of environment of the parasite.

Resistance and Infectivity.—Row from a detailed study of these forms including a number of transmission experiments came to the conclusion that the "O" bodies were highly resistant forms of *L. donovani*, comparable to the cystic aflagellate forms of insect leptomonas and playing an exclusive role in the production of infection. On the other hand the studies of Christophers, Shortt and Barraud (1926-27) and Napier (1927) show that not only are flagellate forms capable of producing infection without the "O" bodies but also that these bodies probably represent end products of degeneration. The latter view was based on the fact that attempts to make sub-cultures from NNN tubes containing "O" bodies without active flagellate forms, always gave negative results. Here it is necessary to mention that the above workers (1926) have themselves described certain "*globular and sub-globular*" forms in old cultures, possessing one large chromatin mass, as possible resistant or cystic forms. These forms on sub-culture appear to have developed into flagellate forms. It is highly probable that these "globular bodies" are identical with the "O" bodies of Row. Other workers have also described similar cystic forms which on sub-culture develop into flagellates. Taking all these into consideration it seems to opine that some at least, if not all, of the "O" bodies are certainly viable, possibly resistant and infective too. Further work alone can decide what exactly is their true

position in the life cycle of *L. donovani* and what their capacities of resistance and infectively are.

Sexual forms.—First described by Di Cristina and Cannata. These are pearshaped and spherical forms often present in old cultures of *Leishmania donovani.* The special characteristic of these forms is that they contain a varying number of chromatin granules besides the nucleus. They are considered to represent possibly sexually differentiated forms. Di Cristina and Cannata think that conjugation (anisogomy) occurs first and later on a large number of aflagellate round forms develop.

The common, normal, recognised method of reproduction in the family trypanosomidae is longitudinal fission. And although the possibility of a sexual process occurring in certain members of this family has often been suggested there has never been any clear evidence put forward in support of these claims. Therefore one cannot but be sceptical at the present time about the above views of Di Cristina and Cannata.

Coccal forms.—First described by Archibald (1913-14). He found these forms in the spleen and liver of persons suffering from symptoms like those of Kala-azar. They resembled large cocci and when grown in N. N. N. tubes failed to develop into any of the known forms of *L. donovani* But on inoculation they produced Kala-azar in monkeys. From these Archibald suggested that they probably represent a stage in the life cycle of the parasite of Kala-azar. This view has never been confirmed by any other worker. In the absence of clearer and more convincing evidence, it is very difficult to accept any such views.

Multiple segmentation forms—First described by Mackie (1915). These consist of large circular masses

of cytoplasm with varying numbers of chromatin masses (generally six or more) arranged in pairs. While Wenyon thinks that these are probably detached portions of cytoplasm of large macrophage cells enclosing leishmania, Yakimoff and others state that they definitely represent multiple segmentation forms.

It is no doubt true that similar forms suggestive of multiple segmentation, have also been described in connection with certain other members of the family trypanosomidæ (Crithidia euryophthalmi—McCulloch 1927; T. lewisi —Wenyon 1926; T. cruzi—Hartmann 1917). But from the scanty information available at present about these forms it is rather premature to form any conclusive opinion either regarding their nature or significance.

Flagellate forms.—First described by Rogers (1904). They consist of an elongate blade-like body of varying size and shape, a centrally placed nucleus, and an anteriorly placed kinetoplast and flagellum Christophers, Shortt and Barraud (1926) made a detailed study of the morphology and life cycle of *L donovani* and classified the different flagellate forms into four main types.

(i) *Early flagellation forms.*—Either globular or ovoid in shape, and resembling the aflagellate leishmania forms. Size-slightly larger than leishmania forms, their greatest length being about 3 to 4 u They all possess a flagellum of various stages of incomplete development.

(ii) *Stumpy forms.*—Either broad, pear or spindle-shaped, with a well developed flagellum which is 2 to 3 times the body length. The body measures about 4 to 6 u in length. The majority of these occur in pairs and division forms are very common.

(iii) *Fusiform multiplicative forms.*—Either elongate torpedo or spigot-shaped with a flagellum as long as thebody or slightly longer. The body measures about 9 to 10 u in length. They usually occur in small groups or clusters. They are the commonest and most predominant type of the flagellates.

(iv) *Mature flagellate forms.*—Typically leaf-like and may be stout, medium or slender. They all possess a well developed flagellum. The body measures from 11 to 15 u They usually occur single and dividing forms are uncommon.

Occurrence.—All the above four forms of flagellates can be commonly seen in N. N N. cultures or infected sandflies. They have never been seen in infected man or animals. Even when experimental animals are inoculated with massive doses of the flagellate forms, it is only the aflagellate leishmania forms that are found in their tissues and blood after infection has taken place.

Resistance.—The flagellate forms are recognised to be less resistant to adverse environment than the aflagellate round forms.

Infectivity.—The infectivity of the flagellate form is also less than that of the aflagellate form. The animals that have been infected by the inoculation of these forms are Hamsters, a few Mice and Rats. As against these successful infections there is an enormous number of recorded failures.

Spirochæte-like forms—First described by Leishman, and later included in Christophers' classification of flagellates under "slender mature forms." These forms are supposed by Leishman to give rise to ultra-microscopic forms (?)

Small round forms with long flagellae.—First described by Shortt. In shape and size thus resemble the 'O' bodies but have very long flagellae. They are present in old cultures and under conditions that give rise to "O" bodies. These are probably resistant forms. If so, their relationship to the "O" bodies will be worth investigating.

Of the several forms of *L. donovani* enumerated above, only three are deserving of a special consideration as probable infective forms. These are the flagellate forms, the "O" bodies of Row, and the L. D. bodies. Each one of these may, therefore be taken up for discussion separately.

Flagellate forms.—The enormous number of failures to infect laboratory animals by inoculation of flagellate forms, has led many to suggest that they are not the infective forms. In the case of the susceptible Hamster, however, inoculation of these forms has produced a fairly high percentage of infection. Also there is evidence to show that though a great number of these forms may be destroyed when inoculated into a host, fair numbers of them are capable of rounding up into the more resistant leishmania form and causing infection Therefore what really seems to matter for a successful infection is not so much the form of the parasite inoculated, as the condition in the host that the parasite has to face Provided the host is a susceptible one, and the serum and cellular conditions of the individual inoculated are not too rapidly destructive the flagellate forms can be as successfully infective as any other more resistant form. The only thing is that where a small dose of a resistant form is needed to produce infection, a larger dose of the flagellate form will have to be used. Thus there appears

to be the least doubt that the flagellate forms are infective, but before they can produce infection two conditions will have to be necessarily satisfied (1) a large dose will have to be given and (2) a susceptible host will have to be chosen.

" O " bodies.—Row not only claims that the " O " bodies represent the infective stage of *L. donovani*, but also that they play an exclusive role in the production of infection. The latter claim however cannot be accepted, in view of the fact that infections of animals have been produced by the inoculation of pure flagellate forms without the " O " bodies. It is however possible that the flagellate forms, after introduction into the host, might have changed into the more resistant " O " bodies and these in turn might have been actually responsible for the infection produced. If it is so then the factors that are favourable to the formation of " O " bodies in the host, assume enormous importance and will have to be studied. As for the claim that the " O " bodies represent the infective stage of *L donovani*, it is. as yet, premature to give any opinion. Even if the question of their viability (which is doubted by some) is accepted there is no definite evidence regarding their resistance or infectivity. Therefore before any views can be expressed about them it would be necessary to obtain information on the following points Are the " O " bodies resistant and infective ? If so, what is their relation to the L. D. body ? Are the two forms identical and can the differences in size, shape, etc., between them be the result of a normal natural variation or is it possible that they represent the two ends of the life cycle of *L donovani* with the flagellate form coming in between ? If so, what are the factors favourable to the formation of " O " bodies in the sandfly and in the human host ?

Leishman-Donovan bodies.—It is accepted on all hands that these are the most infective forms of *L. donovani.* Inoculation of these produces a very high percentage of successful infection in variety of laboratoy animals. And although it cannot justly be claimed that they play an exclusive role in the production of infection, it is a fact that they are the only forms found in the infected animal. Furthermore, of all the forms of *L. donovani* the L. D. bodies are undoubtedly the most resistant and as such have the best chance of survival both in and out of the host's tissues Therefore one may suggest that they are probably the infective forms. If it is so, the question naturally arises what is the biological significance of the flagellate forms. Under what conditions do these become transformed into the L. D. bodies ? Where does such a transformation occur ? Is it before or after entry into the host ? If before, what are the factors favourable to the formation of these forms in nature ? (as for example in the infected sandfly.) Supposing that the route of infection is oral, how do these aflagellate forms get into the tissues ? Is it through any breach of surface in the alimentary tract or is it possible that they flagellate first, penetrate the mucous membrane, and then resume their original rounded form in the host's tissues ? Until and unless one is in a position to answer satisfactorily a whole lot of such questions, it seems almost impossible to pronounce any definite opinion regarding the question of whether the L. D. body is or is not the infective stage of the parasite. At present it can only be said that while more than one known form of *L. donovani* is capable of producing infection, the chances of success are highest when the L. D. forms are used.

OBITUARY

THE LATE CAPTAIN N. R. UBHAYA.

We regret to record the sudden and unexpected death of Captain N. R. Ubhaya, the Director of Public Health, Madras, on 26 8-30 at his residence at Theagaraya Nagar, Madras. The death was due to heart failure. The late Captain Ubhaya was, it is reported, not in his best of health for the last 6 months. As a result of hard work for the past one year as acting Director of Public Health, his health was breaking down. He had just returned from a tour in some of the Tamil and Telugu Districts, and had attended a meeting at Madras just two days previous to his sudden death.

He was born in Mangalore in 1880 of a very respectable Saraswat family. After his early education in Mangalore and in the Presidency College, Madras, he joined the Medical College. After studying in the Medical College for three years, he proceeded to Edinburgh in 1911 and got the L.R C P, L R C.S., and L.F.P.S. of the Edinburgh and Glasgow. He later obtained the Diploma of Public Health and returned to India in the year 1913. He was appointed as an Assistant Health Officer in the Madras Corporation for a time. When the War broke out in 1914 he was one of the first who placed his services at the disposal of the Government. He was sent to Mesopotamia with a temporary commission in the I.M.S., and his work at the Military hospital at Amara was much appreciated. He was one of the I.M.S. officers who were taken by the Turks as Prisoners of war in the siege of Kut-el-Amara and he suffered a good deal during the early parts of his captivity. He was released in 1918 when the Armistice was signed and came to India in 1919. He was again called to the Frontier where he served till 1920 when he was demobilised. After serving in a few places in South India he was taken

into the Madras Public Health Department in 1923 and as a mark of appreciation of his War Service he was appointed as Assistant Director of Public Health. He went on a year's study leave to England in 1924 where he made a special study of Public Health propaganda, Maternity and Child Welfare work. He returned to Madras in 1925. When Lt.-Col. A. J. H. Russell, the Director of Public Health proceeded on leave in 1928, Captain Ubhaya was appointed in his place, which he occupied till his death. He acquitted himself thoroughly of the responsible work he was entrusted with. He was known among his subordinates as a considerate, and sympathetic officer and among his friends for his amiable and genial disposition.

His funeral, which was attended by a very large number of people, European and Indian, official and non-official, proved the popularity that he enjoyed both in office, as well as in public life and in him South India has lost one of the most straightforward and kind hearted public workers. We offer our sincere condolences to Mrs. Ubhaya.

THE LATE DR. KUGLER.

The dealth of Dr. Kugler of Guntur removes one of the foremost missionary medical workers in India. Dr. Kugler came to India about 50 years ago and had been doing humanitarian work in the Andhra Desa to alleviate the sufferings of Andhra women. Her amiable disposition, selfless endeavours and zealous honorary work earned her the love of all the Andhra public. The Women's Mission Hospital, Guntur, where she treated thousands of patients will stand as a monument to her name. Her loss is irreparable to India in general and South India in particular.

EXTRACTS.

A Japanese Physician's Personal Code.

The Japanese physician, Koan Ogata, lived from 1812 to 1863. His medical code, known as Fushi Ikai No Ryaku, which has been translated by Dr. Shiro Tashiro and Martin H. Fischer, and published in the Journal of the A. M .A., is worthy of general study by medical men, in all countries and at all times.

I

" The Physician lives not for himself but for others. This is the essence of his profession. Do not look for fame or profit. Work to save others though you lose yourself. Maintain life, restore the sick and ease the suffering of men. You have no other object."

II

" Face to face with the patient, remember only that he is sick, not his station or his wealth. Compare the rich man's handful of gold with the poor man's tear of gratitude. Which will you have?"

III

" When practising your art remember that the patient is the target, not the bow or arrow. Do not play with him. Think without prejudice; consider with narrowed eyes."

IV

" Besides being modern and erudite, learn how to win the confidence of your sick man through word and action. But let these be not superficial, casual or pretentious. Do not mouth deception and queer hypotheses."

V

" At night think over the happenings of the day. Record your experience and observations. Such benefit the patient and the world."

VI

" One deliberate examination and one visit are superior to many careless examinations and many visits. But do not refuse to make frequent calls on the ground that such degrade your dignity."

VII

" Even when the disease is incurable, understand the sufferings of your sick man and do your duty by trying to maintain his life. It is inhuman to surrender. Even when you cannot save him, you can comfort him. This is the human art. Try to prolong his life even though it be for but a moment. Do not tell him of the hopelessness of his state. Through your discretion in word and manner you will not left him guess the real situation."

VIII

" Make the patient's illness cost him as little as possible Of what use to save his life when you take away the means of its maintenance? "

IX

" The physician must win the good will of the public. However skilful your science, however dignified your conduct, you cannot impart to advantage the good within you unless you hold the confidence of your people You must understand man and the public's state of mind. You who are interested in life, who must listen to naked truth, who must hear the confession of shameful sin, need character and gentleness Avoid gossip. Silence is better. Nor need I warn you against gambling, drunkenness, sexual excess and anxiety for fame "

X

" Respect and love the colleagues of your profession. But, if possible, and least be patient. Do not discuss other physicians. To narrate their shortcomings is the shame of the wise man , to talk their defects is the business of the small. A moment's discussion of a single error may work perpetual injury to a

reputation. Consider such consequences. Every physician has his own characteristics and his own methods. Do not judge lightly Respect the older physicians and endear the younger to you. Stress their better side and refuse to comment on their treatment, since you have not seen the patient."

XI

" A consultation should not include many—three at most. Select the right men. In conference, consider only the safety of the sick man and argue nothing else."

XII

" A patient may leave his physician to consult you. Do not be deceived. Hear the former physician's side. But where convinced that the treatment has been in error, it is against the code to be indifferent. Especially when critical, act, and with vigor "

" These twelve mandates have I written and showed to a few, but mainly did I write them for my own guidance "—*The Phlebotomist.*

Simon Commission's Survey of Medical Service in India. Vol I, Part IV, Chap I.

Para 305

The whole system of medical administration in India has been built up by the Indian Medical Service. It is primarily a military service, and all its officers are required to serve for some years as medical officers of the Indian Army. But a certain number are allowed to transfer to service under the civil administration, where their normal appointment is that of civil surgeon of a district The civil surgeon is the medical representative of the provincial government in his district. As long as the chair of the District Board and of other self-governing bodies were occupied by the District Officer, the civil surgeon, working in close co-operation with him, could insure that measure which he thought necessary for the public health of the district would

be carried out. But the new policy in relation to local self-Government (which will be described in Chapter 4 of this Part of our Report) limited the effective powers of the civil surgeon for medical administration. Much of it is now the charge of local self-Governing bodies under non-official chairmen, and the civil surgeon can now only offer advice where formerly, with the assistance of the District Officer, he had issued orders. He still remains, however, the medical representative of the provincial Government in the district in relation to any matter over which it retains direct control In particular, he is in charge of the district hospital at the headquarters of the district.

As a result of Lee Commission's recommendations, the number of Indian Medical Service officers employed under provincial Government is now limited to those required to supply a medical reserve for the Indian Army in war and to provide treatment by European medical men for the European members of the services and their families. The medical staff of the provinces, over and above this is now provided by provincial medical services

It seems clear that the Indian Medical service does not at present offer the same attractions as formerly to the medical profession, and recruitment has suffered This may be a passing phase—other military medical services, such as the Royal Army Medical Corps, are no better off—but a failure in recruitment for the Indian Medical Service would be a very serious matter for India. The maintenance of the European element in other services is dependent upon the Government's ability to provide qualified European doctors for the treatment of officers and their families. A failure of supply would have other consequences besides The achievement of the I M. S. in the study of tropical medicine have been remarkable—Sir Ronald Ross's work on malaria is the most striking, but not the only example—and if such men are to have no successors, the public health of India will pay a heavy price for it. It has been stated that the deaths in India from preventible disease each year amount to five or six millions. The problems presented by such enormous

figures can only be attacked by presistent research by highly trained and enthusiastic medical investigators, and a medical service recruited provincially in India will be no substitute in this regard for one with the exceptional standards and traditions of the Indian Medical Service

But the Indian Medical Service could ill be spared for still another reason. Nothing impressed us more in the course of our journeys through India than the need, in all but the best hospitals, for the raising of the standards of medical treatment, and especially in such matters as equipment and nursing. We gladly recognize the enthusiasm of Indian public men for the improvement of medical facilities. But enthusiasm without adequate standards has its dangers; and the loss of contact with the standards and progress of Western medicine, which would be entailed by a failure of recruitment for the Indian Medical Service, would, we are convinced, be disastrous for the future of the public health of India.

Gold Strike.

"Have you heard that our friend Meyer has become rich at a single stroke?"

"No. How did it happen?"

"His rich uncle had a stroke."—*Lustige Kolner Zeitung* (*Cologne*).

Musical Names.

"Rastus, I understand that you have become the father of twins?"

"Yassuh, Ah done call the fust one Adagio Allegro, and Ah'm goin' t' call the second one Encore".

"Musical names, all right. But why do you call the second one Encore?"

"Well, suh, you see, he wasn't on the program at all."

The Psychoneurotic Delinquent

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I. Introduction.

The definition of psychoneurosis, adopted by the American Psychiatric Association in 1927, is:

"The psychoneurosis group includes those disorders in which mental forces or ideas of which the subject is either aware (conscious) or unaware (unconscious) bring about various mental and physical symptoms; in other words these disorders are essentially psychogenic in nature."(1)

The classifications sanctioned by the same body differentiates three types of psychoneurosis, namely the neurasthenic, psychasthenic, and hysterical. Atypical cases are designated as "other types."

While most authorities agree that there is a constitutional or hereditary predisposition to psychoneurosis, the exact etiology is still a matter of debate. Wechsler(2) considers the etiology under the heading of: (1) biologic approach; (2) organic or pathologic theory, (3) physiologic theory, (4) behavioristic theory; (5) glands of internal secretion; (6) vegetative nervous system; (7) theory of the psychoanalysts. The first assumes that psychoneurosis is merely an expression of the inability of the individual to adjust himself to his social group as manifested by a "flight from reality and an attempt to evade the demands of life." The second propounds that there is a definite organic basis for all neuroses, possibly the initial cause being an accumulation of endogenous or exogenous toxins. Exhaustion, infection, and excesses of all kinds, particularly sexual, are cited as contributing factors. This theory is open to debate as many individuals exposed

to overwork and excesses of all kinds do not develop psychoneurosis, and conversely, many who are not exposed do develop psychoneurosis The secondary neurasthenias occurring as a complication of syphilis, tuberculosis, etc , have an organic basis in the etiology of the primary disease. The third, or physiologic theory, attempts to establish the concept of neuroses on the basis of a functional disturbance of the brain induced by a breech at the various synaptic junctions and consequent dissociation at the different levels of the neuraxis, thus preventing passage of centripetal stimuli. The fourth, typifying the behaviorists, reduces psychoneurosis to a series of physiologic responses or conditioned reflexes, thus fixing the blame on environment. The fifth suggests a possible correlation between endocrine imbalance and psychoneurosis offering as proof the frequent association of the two. Lawrence and Rowe state in this connection :

" We have been forced to conclude that every patient exhibiting symptoms of neurosis, psychosis, or psychoneurosis, deserves a careful medical endocrine study before the condition is ascribed to ' neurogenic ' or psychogenic causes. We do not wish to be understood as ascribing every neurosis or psychosis to disturbed endocrine function ; but we do wish to emphasize the point that only by careful metabolic studies can such a condition, either associated or casual, be eliminated in case of any given patient."(5)

The sixth, or vegetative nervous system theory, propounds a relationship between the autonomic nervous system and psychoneurosis. However, it is difficult to determine which is the cause and which the effect in such a relationship.

Last, Wechsler sums up by presenting the view of the psychoanalysts quoting A Polon .

" 1. The neurosis is essentially a repetition of infantile situations

" 2. The seat of the pathologic process is in the sexual sphere

"3. The disease is precipitated by an external factor in adult life, inducing withdrawal from reality into the world of phantasy.

"4. This unconscious phantasy is an expression of a regression to an early (phase of) psychosexual development.

"5. This particular point of development, termed fixation of the libido, is the resultant of two factors—infantile traumatic experience and heredity—which constitute the predisposition.

"6 Regression and that phase of the personality termed the ego (in the main) determine the genesis of the neurosis."

The symptomatology of psychoneurosis is best approached by a discussion of the individual types. The neurasthenic type is characterized by abnormal fatigability and exaggerated irritability. The symptoms may be classed as motor, sensory, psychic, and visceral.(4) The motor disturbances are expressed by muscular fatigue, exaggerated reflexes, and often a fine tremor resembling that of hyper-thyroidism. The sensory disturbances include headaches which are usually occipital backache, usually lumbar and sacral, various neuralgic pains and parasthesias, ready fatigue of the eyes and blurring of vision. Psychic disturbances are manifested by a diminished capacity for continued mental work, distractability of attention, irritability of temper, varying degrees of depression, lack of self-confidence, indecision, introspectiveness, morbid sensitiveness, vague apprehensiveness, and insomnia. Visceral disturbances are indicated by capricious appetite, sense of oppression in the epigastrium, flatulence, eructations, borborygmi, heart burn, constipation as a rule, mucous colitis, irritable heart, vasomotor instability, and derangement of sexual function (nocturnal emissions, premature ejaculations, masturbation, etc.)

The psychasthenic type is characterized by the presence of irresistable obsessions or phobias usually with a history of a tainted heredity. The most constant manifestations are a sense

of inadequacy, timidity, lack of inhibition, and a feeling of unreality as though the patient were not himself. The loss of inhibition may exhibit itself in motor tics as well as psychically. The special fears are designated by the term phobia, *e.g.*, photophobia, fear of light, hematophobia, fear of blood, etc. Impulsive obsessions are variously named, *e.g.*, kleptomania, an urgent desire to steal, pyromania, an impulsion to set fire, etc.

The hysterical type is characterized by a state of increased suggestibility, expressing itself by bizarre reactions involving the emotions, sensorium, motility, and other functions of the nervous system The symptoms may be conveniently grouped into sensory, motor, mental, visceral, vasomotor, and trophic. The first is represented by parasthesias and anaesthesias which may involve any portion of the body or any sensation, including the organs of special sense A peculiarity of the anaesthesias of hysteria is that they do not conform to the anatomical distribution of nerves, the anaesthetic zones are movable, and the reflexes associated with the insensitive areas are preserved.(5) Parasthesias may take the form of numbness, flashes of heat or cold, crawling sensations, globus hystericus or lump in the throat, etc.

Motor disturbances include paralyses, contractures, convulsions, and tremors. Paralyses may involve individual muscles or groups of muscles, simulating hemiplegias, paraplegias, etc The points which serve to differentiate hysterical from true paralysis are (1) reflexes are not lost in the former ; (2) there is no electrical change; (3) there is no loss of nutrition in the muscles ; (4) absence of abnormal reflexes such as Babinski, Oppenheim, etc. Aphonia and mutism may occur as the result of loss of function of the muscles which control speech. Contractures and spasms such as torticollis, hiccough, grunts, sobs, laughter, etc., are frequently met with. The convulsions of hysteria may simulate those of epilepsy. However, in the former the patient rarely hurts himself by falling hard or biting his tongue, nor does he have loss of sphincter control. In addition to episodic convulsions there may be choreiform like movements, the so-called hysterical dance, and other manifestations of a similar nature.

Psychic disturbances, aside from the extreme suggestibility, include amnesia, duality and alteration of personality, eroticism, frigidity or perverseness, irritability, egocentricity, and emotional instability.

Visceral disturbances may present themselves in the form of anorexia, nausea and vomiting, tympanites, polyuria, sighing inspiration, and exaggerated yawning. Vasomotor and trophic disturbances are exhibited by dermographism, alternate flushing and blanching of the skin, or alternate sensation of heat and cold.

The diagnosis of psychoneurosis demands a thorough history and complete physical examination. The anamnesis should lay stress on (1) hereditary influences ; (2) environmental conditions in childhood and patient's reaction to them ; (3) state of nutrition in infancy and childhood ; (4) sex life ; (5) any feeling of inferiorty [5]

A useful diagnostic adjunct has been found in the Woodworth Personal Data Sheet.[6] This consists of a list of 116 questions designed to bring out not only psychoneurotic symptoms, but also, pertinent points in the patient's heredity, past medical history, childhood environment, and reactions to childhood environment. The questions are reproduced in full with the wrong answers given in large type and the right answers in small type :

1. Do you usually feel well and strong ? Yes NO
2. Do you usually sleep well ? Yes NO
3. Are you often frightened in the middle of the night ? YES No
4. Are you troubled with dreams about your work ? YES No
5. Do you have nightmare ? YES No
6. Do you have too many sexual dreams ? YES No
7. Do you ever walk in your sleep ? YES No
8. Do you have the sensation of falling when going to sleep ? YES No
9. Does your heart ever thump in your ears so that you cannot sleep ? YES No

10. Do ideas run through your head so that you cannot sleep? YES No
11. Do you feel well rested in the morning? Yes NO
12. Do your eyes often pain you? YES No
13. Do things ever seem to swim or get misty before your eyes? YES No
14. Do you often have the feeling of suffocating? YES No
15. Do you have continual itchings in the face? YES No
16. Are you bothered much by blushing? YES No
17. Are you bothered by fluttering of the heart? YES No
18. Do you feel tired most of the time? YES No
19. Have you ever had fits of dizziness? YES No
20. Do you have queer, unpleasant feelings in any part of the body? YES No
21. Do you ever feel an awful pressure in or about the head? YES No
22. Do you often have bad pains in any part of the body? Where? YES No
23. Do you have a great many bad headaches? YES No
24. Is your head apt to ache on one side? YES No
25. Have you ever fainted away? YES No
26. Have you often fainted away? YES No
27. Have you ever been blind, half-blind, deaf or dumb for a time? YES No
28. Have you ever had an arm or leg paralyzed? YES No
29. Have you ever lost your memory for a time? YES No
30. Did you have a happy childhood? Yes NO
31. Were you happy when 14 to 18 years old? Yes NO
32. Were you considered a bad boy? YES No
33. As a child did you like to play alone better than to play with other children? YES No
34. Did the other children let you play with them? Yes NO
35. Were you shy with other boys? YES No
36. Did you ever run away from home?* YES No
37. Did you ever have a strong desire to run away from home? YES No
38. Has your family always treated you right? Yes NO

39. Did the teachers in school generally treat you right? Yes NO
40. Have your employers generally treated you right? Yes NO
41. Do you know of anybody who is trying to do you harm? YES No
42. Do people find fault with you more than you deserve? YES No
43. Do you make friends easily? Yes NO
44. Did you ever make love to a girl? Yes NO
45. Do you get used to new places quickly? Yes NO
46. Do you find your way about easily? Yes NO
47. Does liquor make you quarrelsome? YES No
48. Do you think drinking has hurt you? YES No
49. Do you think tobacco has hurt you? YES No
50. Do you think you have hurt yourself by going too much with women? YES No
51. Have you hurt yourself by masturbation (self-abuse)? YES No
52. Did you ever think you had last your manhood? YES No
53. Have you ever had any great mental shock? YES No
54. Have you ever seen a vision? YES No
55. Did you ever have the habit of taking any form of "dope"? YES No
56. Do you have trouble in walking in the dark? Yes NO
57. Have you ever felt as if some one was hypnotizing you and making you act against your will? YES No
58. Are you ever bothered by the feeling that people are reading your thoughts? YES No
59. Do you ever have a queer feeling as if you were not old self? YES No
60. Are you ever bothered by a feeling that things are not real? YES No
61. Are you troubled with the idea that people are watching you on the street? YES No
62. Are you troubled with the fear of being crushed in a crowd? YES No
63. Does it make you uneasy to cross a bridge over a river? YES No

64. Does it make you uneasy to go into a tunnel or subway? YES No
65. Does it make you uneasy to have to cross a wide street or open square? YES No
66. Does it make you uneasy to sit in a small room with the door shut? YES No
67. Do you usually know just what you want to do next? Yes NO
68. Do you worry too much about little things? YES No
69. Do, you think you worry too much when you have an unfinished job on your hands? YES No
70. Do you think you have too much trouble in making up your mind? YES No
71. Can you do good work while people are looking on? Yes NO
72. Do you get rattled easily? YES No
73. Can you sit still without fidgeting? Yes NO
74. Does your mind wander badly so that you lose track of what you are doing? YES No
75. Does some particular useless thought keep coming into your mind to bother you? YES No
76. Can you do the little chores of the day without worrying over them? Yes NO
77. Do you feel you must do a thing over several times before you can drop it? YES No
78. Are you afraid of responsibility? YES No
79. Do you feel like jumping off when you are on a high place? YES No
80. At night are you troubled with the idea that somebody is following you? YES No
81. Do you find it difficult to pass urine in the presence of others? YES No
82. Do you have a great fear of fire? YES No
83. Do you ever feel a strong desire to go and set fire to something? YES No
84. Do you ever feel a strong desire to steal things? YES No
85. Did you ever have the habit of biting your finger nails? YES No

86. Did you ever have the habit of stuttering ? YES No
87. Did you ever have the habit of twitching your face, neck or shoulders ? YES No
88. Did you ever have the habit of wetting the bed ? YES No
89. Are you troubled with shyness ? YES No
90. Have you a good appetite ? Yes NO
91. Is it easy to make you laugh ? Yes NO
92. Is it easy to get you angry ? YES No
93. Is it easy to get you cross or grouchy ? YES No
94. Do you get tired of people quickly ? YES No
95. Do you get tired of amusements quickly ? YES No
96. Do you get tired of work quickly ? YES No
97. Do your interests change frequently ? YES No
98. Do your feelings keep changing from happy to sad and from sad to happy without any reason ? YES No
99. Do you feel sad or low-spirited most of the time ? YES No
100. Did you ever have a strong desire to commit suicide ? YES No
101. Did you ever have heart disease ? YES No
102. Did you ever have St. Vitus's dance ? YES No
103. Did you ever have convulsions ? YES No
104. Did you ever have anaemia badly ? YES No
105. Did you ever have dyspepsia ? YES No
106. Did you ever have asthma or hay fever ? YES No
107. Did you ever have a nervous breakdown ? YES No
108. Have you ever been afraid of going insane ? YES No
109. Has any of your family been insane, epileptic or feeble-minded ? YES No
110. Has any of your family committed suicide ? YES No
111. Has any of your family had a drug habit ? YES No
112. Has any of your family been a drunkard ? YES No
113. Can you stand pain quietly ? Yes NO
114. Can you stand the sight of blood ? Yes NO
115. Can you stand disgusting smells ? Yes NO
116. Do you like out-door life ? Yes NO

Woodworth applied this questionnaire to a number of normal individuals as well as to a group of known abnormal

individuals. He then established forms as follows: (1) normal individuals are apt to answer 10 questions wrongly; (2) above 20 wrong answers may be considered as evidence of a psychoneurotic tendency; (3) above 30 wrong answers may be considered as indicative of psychoneurosis.

By noting the answers to the questions one can get a general idea as to which type of psychoneurosis the individual exhibits. Thus if the patient gives incorrect answers to queries 21 to 29 inclusive, it is highly suggestive of a hysterical tendency, provided that he gives a total of 30 or more wrong answers, and provided also that there is not a definite organic basis. Similarly, questions 59-85 tend to bring out psychasthenic tendencies. Neurasthenic tendencies are manifested by incorrect responses to questions such as the first, second, ninth, eleventh, etc.

The personal data sheet must not supersede a history and physical examination. However, if it is employed as a "laboratory aid" and is not regarded as an *infallible* instrument for the diagnosis of psychoneurosis, it proves of great value, especially in routine institutional work where it is impossible to spend much time in the examination of each individual.

II. The Psychoneurotic Delinquent.

The data for this investigation were obtained from the files of the Psychiatric Field Service of the State Board of Control of Wisconsin, consisting of admission examinations made at the Wisconsin State Prison, Wisconsin State Reformatory, Wisconsin Industrial Home for Women, and Wisconsin Industrial School for Girls, from July 1, 1928, to January 1, 1930. Up to July 1, 1928, the examinations included physical, mental and psychometric. Since then the Woodworth Personal Data Sheet has been gradually incorporated in the routine examination of inmates of the various penal and correctional institutions of the state.

An initial study of the Psychoneurotic Inventory, or Personal Data Sheet, was made by applying it to all male admissions

to the Wisconsin State Prison, exclusive of the mentally deficient or feebleminded, for the months of February and March, 1928. Reference to this study in the biennial report of the Psychiatric Field Service, is made as follws :

" The Psychoneurotic Inventory has proven so serviceable as a diagnostic aid in the examination of delinquents that on and after July 1, 1928, its use at the State Prison will be a part of the routine examination of all male admissions, exclusive of the feeble-minded. It must be reconstructed in part for use in the examination of female delinquents and an abbreviation of it made for use in the examination of juvenile offenders. Eventually as experience warrants, the use of the Psychoneurotic Inventory will be extended into all the state correctional institutions in Wisconsin." (7)

The following alterations were made in order to make the Personal Data Sheet applicable to women :

1. Question : Were you considered a bad boy ?
Substitute : Were you considered a bad, disobedient child ?
Score : Same.

2. Question · Were you shy with other boys ?
Substitute Have you cared to go to dances and parties ?
Score . Reversely.

3. Question : Did you ever make love to a girl ?
Substitute : None. Score : Reversely.

4. Question : Do you think you have hurt yourself by going too much with women ?
Substitute : Do you think you have hurt yourself by going too much with the opposite sex ?
Score : Same.

5. Question : Did you ever think you had lost your manhood ?
Substitute : Did you ever think you had lost your womanhood ?
Score . Same.

On and after July 1, 1929, the revised form was employed in the examination of all individuals admitted to the State Prison, State Reformatory, and Industrial Home for Women, with the exception of the low grade morons. Inmates of the Industrial School for Boys and the Industrial School for Girls who were sixteen years of age or above were also included, the low grade morons being excepted.

The available material therefore consists of :

1. 662 admission examinations made at the State Prison from July 1, 1928, to January 1, 1930, out of which number 396 were tested by the Personal Data Sheet, and 52 found psychoneurotic, *i.e.*, were found to have 30 or more wrong answers.

2. 675 admission examinations made at the State Reformatory for the same period, out of which number 392 were similarly tested, and 27 found psychoneurotic.

3. 94 admission examinations made at the Industrial Home for Women for the same period, out of which number 39 were tested, and 6 found psychoneurotic.

4. 144 admission examinations made at the Industrial School for Girls for the same period, out of which number 34 were tested, and 4 found psychoneurotic.

The examinations made at the Industrial School for Boys are not included since there were none found psychoneurotic by the Woodworth inventory. The total number examined on admission during this period at the institutions named is therefore, 1,595, of which 861 were tested by the Woodworth Personal Data Sheet and 89 found psychoneurotic.

In order to ascertain the relative frequency with which each of the 116 questions in the Personal Data Sheet were incorrectly answered, 200 of the completed Psychoneurotic Inventories made on the inmates admitted to the State Prison for the year July 1, 1928, to July 1, 1929, were analyzed. This group comprised 195 men and 5 women. The questions are reproduced below in the order of frequency.

1.	Do you think drinking has hurt you? ...	78
2.	Do you think you worry too much when you have an unfinished job on your hands? ...	77
3.	It is easy to get you angry? ...	67
4.	Did you ever run away from home? ...	64
5.	Do your eyes often pain you? ...	59
6.	Do ideas run through your head so that you cannot sleep? ...	58
7.	Do you often have bad pains in any part of the body?	57
8.	Did you ever have a strong desire to run away from home? ...	57
9.	Do you worry too much about little things? ...	56
10.	Do your interests change frequently? ...	55
11.	Do things ever seem to swim or get misty before your eyes? ...	53
12.	Did you ever have the habit of biting your finger nails? ...	48
13.	Were you considered a bad boy? ...	47
14.	Is it easy to get you cross or grouchy? ...	47
15.	Can you stand disgusting smells? ...	45
16.	As a child did you like to play alone better than to play with other children? ...	44
17.	Do people find fault with you more than you deserve?	44
18.	Do you know of anybody who is trying to do you harm? ...	42
19.	Do you get rattled easily? ...	41
20.	Do you ever have a queer feeling as if you were not your old self? ...	40
21.	Do you feel sad or low spirited most of the time? ...	40
22.	Can you sit still without fidgeting? ...	39
23.	Do you feel well rested in the morning? ...	38
24.	Have you ever fainted away? ...	38
25.	Were you happy when 14 to 18 years old? ..	37
26.	Do you ever feel a strong desire to steal things? ...	37
27.	Do you have queer unpleasant feelings in any part of the body? ...	36
28.	Do you usually feel well and strong? ...	35

29.	Do you usually sleep well? ...	35
30.	Do you think tobacco has hurt you? ...	34
31.	Do you think you have hurt yourself by going too much with women? ...	33
32.	Are you bothered much by blushing? ...	33
33.	Did you have a happy childhood? ...	33
34.	Do you have a great many bad headaches? ...	32
35.	Can you do good work while people are looking on?	32
36.	Is it easy to make you laugh? ...	32
37.	Have you ever had fits of dizziness? ...	31
38.	Do you usually know just what you want to do next?	30
39.	Do your feelings keep changing from happy to sad and from sad to happy without any reason? ...	30
40.	Does some particular useless thought keep coming into your mind to bother you? ...	29
41.	Do you feel tired most of the time? ...	28
42.	Does liquor make you quarrelsome? ...	28
43.	Do you think you have too much trouble in making up your mind? ...	28
44.	Do you find it difficult to pass urine in the presence of others? ...	28
45.	Do you get tired of amusements quickly? ...	28
46.	Do you have the sensation of falling when you go to sleep? ...	27
47.	Do you get used to new places quickly? ...	27
48.	Have you ever lost your memory for a time? ...	25
49.	Has your family always treated you right? ...	25
50.	Are you bothered by fluttering of the heart? ...	24
51.	Are you ever bothered by a feeling that things are not real? ...	24
52.	Are you troubled with shyness? ...	24
53.	Did you ever make love to a girl? ...	23
54.	Have you ever had any great mental shock? ...	23
55.	Does your mind wander badly so that you lose track of what you are doing? ...	23
56.	Does your heart ever thump in your ears so that you can not sleep? ...	22

57. Do you get tired of work quickly? ... 21
58. Has any of your family been a drunkard? ... 21
59. Can you stand the sight of blood? ... 21
60. Do you ever feel an awful pressure in or about the head? ... 20
61. Do you feel you must do a thing over several times before you can drop it? ... 20
62. Do you get tired of people quickly? ... 20
63. Can you stand pain quietly? ... 19
64. Is your head apt to ache on one side? ... 19
65. Have you ever been afraid of going insane? ... 19
66. Do you make friends easily? 17
67. Does it make you uneasy to sit in a small room with the door shut? ... 17
68. Are you afraid of responsibility? .. 17
69. Have you ever had hay fever or asthma? ... 17
70. Are you troubled with the idea that people are watching you on the street? ... 16
71. Have you ever seen a vision? ... 15
72. Have you a good appetite? ... 15
73. Do you have night-mare? ... 15
74. Do you have a great fear of fire? ... 14
75. Do you have continual itchings in the face? ... 14
76. Are you troubled with dreams about your work? ... 14
77. Are you often frightened in the middle of the night? 13
78. Do you often have the feeling of suffocating? ... 13
79. Did you ever have the habit of wetting the bed? ... 13
80. Did you ever have heart disease? ... 13
81. Did you ever have a nervous breakdown? ... 13
82. Are you ever bothered by the feeling that people are reading your thoughts? ... 12
83. Did you ever have the habit of twitching your face, neck, or shoulders? ... 12
84. Were you shy with other boys? ... 11
85. Were you ever blind, half-blind, deaf, or dumb for a time? ... 11
86. Did you ever have a strong desire to commit suicide? 11

87.	Did you ever have the habit of stuttering? ...	10
88.	Did you ever have dyspepsia? ...	10
89.	Has any of your family been insane, epileptic, or feebleminded? ...	10
90.	Do you ever walk in your sleep? ...	10
91.	Did you ever think you had lost your manhood? ...	9
92.	Can you do the little chores of the day without worrying about them? ...	9
93.	Have you ever felt as if someone was hypnotizing ... you and making you act against your will? ...	8
94.	Do you have too many sexual dreams? ...	7
95.	Do you find your way about easily? ...	6
96.	Have you hurt yourself by masturbation (self-abuse)?	6
97.	Did you ever have the habit of taking any form of "dope"? ...	6
98.	Does it make you uneasy to cross a bridge over a river? ...	6
99.	Does it make you uneasy to have to cross a wide street or open square? ...	6
100.	Did the teachers in school generally treat you right?	5
101.	Have your employers generally treat you right? ...	5
102.	Does it make you uneasy to go into a tunnel or subway? ...	5
103.	Did you ever have anaemia badly? ...	5
104.	Have you often fainted away? ...	4
105.	Have you ever had an arm or leg paralyzed? ...	4
106.	Do you have trouble in walking in the dark? ...	4
107.	Do you feel like jumping off when you are on a high place? ...	4
108.	Are you troubled with the fear of being crushed in a crowd? ...	3
109.	At night are you troubled with the idea that somebody is following you? ...	3
110.	Did you ever have St. Vitus dance? ...	3
111.	Has any of your family committed suicide? ...	3
112.	Did the other children let you play with them? ...	2

113. Do you ever feel a strong desire to go and set fire to something ? ... 1
114. Did you ever have convulsions? ... 1
115. Has any of your family had a drug habit? ... 1
116. Do you like out-door life ? ... 1

Questions Corrected for females.

1. Do you think you have hurt yourself by going too much with men? ... 1
2. Were you considered a bad child ? ... 1
3. Have you cared to go to dances and parties? ... 1

The questions with the highest frequency of incorrect response indicate that the psychoneurotic delinquents tend toward alcoholic excess and are given to worries, irritability and paranoid ideas. They are apt to give a history of incorrigibility and unhappiness during childhood. Frequent change of interest, indicative of instability, is well up among the questions with highest frequency of wrong answers. Unhappiness and dissatisfaction are also brought out.

Employing the same group of 200 psychoneurotic inventories a general distribution curve of the total number of incorrect answers made by each individual was plotted and is presented on the following page. The group was then subdivided on the basis of age, intelligence, and criminal history, percentile norms being established as shown in Table I. Percentile norms indicate the number of total incorrect responses made by a given percentage of individuals. Thus, 10 percentile means the number of total incorrect responses made by 10 per cent of the individuals tested ; 50 percentile or median implies the number of total incorrect answers given by 50 per cent of the individuals; and 90 percentile the number of total wrong answers made by 90 per cent of the individuals tested.—

—*The Medico-Legal Journal.*

(*To be continued in January 1931.*)

CASE REPORTS.

(*Department of Pathology, Madras Medical College.*)

A case of Primary Krukenberg's tumour of the ovaries.

B—30 years, female, Indian Christain, was admitted into the Victoria Caste and Gosha Hospital, Madras, in May 1930 with a complaint of 2 months amenorrhoea, fever and severe pain in the lower abdomen for the last 5 days. Her temperature was 102°, pulse 118 and respirations 32 per minute on admission. On vaginal examination the uterus was found retroverted but normal in size, cervix directed forwards. There was a big mass in the right fornix which rose to the level of the umbilicus. Another lump was noticed in the left fornix, which was entirely in the pelvis. There was nothing abnormal in the urine and no parasites in the blood.

She was operated on, four days later. A certain amount of straw coloured fluid escaped on opening the peritoneal cavity. A solid tumour was found arising from the right ovary. This tumour was twisted on its pedicle and was adherent to omentum. The left ovary was also found enlarged and a tumour of the size of a big mango was found arising from it. Double salpingo-oophorectomy was performed and the uterus was fixed to the anterior abdominal wall.

There was no ascites clinically but on opening the abdomen a small quantity of straw coloured fluid escaped. There was no sign of primary growth in the stomach, liver, etc. The right ovary was of the size of a cocoanut, solid and the left ovary was only about a tenth of the size of the right. The other pelvic organs were not affected and there were not even omental adhesions.

Naked eye appearances.—The tumour is of the size of an unhusked cocoanut and is purplish grey on the surface. It is flatly nodular in places and there are alternating areas of

brownish pigment and greyish tissue. In one area is seen a flattened band, representing the Fallopian tube. The whole tumour is of the shape of a kidney. There is a cyst on the surface, of the size of a lime with thin shining wall and a purplish base. On cutting the tumour open, there is a purplish area round the margin and a tough yellowish portion in the middle. There is a cyst of the size of a small orange in the middle, more towards the periphery. This cyst has a smooth purplish black base. Areas of blackish brown pigmentation and haemorrhage are seen here and there.

The yellowish tissue in the middle contains a number of white fibrous intervening bands running through it to the periphery. The whole tumour weighs nearly 2½ lbs Capsulation is not definite.

Microscopic appearances.—The section shows a number of oval or polygonal cells with a faint pink staining protoplasm and a dark blue nucleus which is oval or flattened. Many of the cells show a mucoid appearance with the nucleus flattened and pushed to one side. In some places the cells are freely intermingled with the stroma of the ovary at others they are grouped with larger or smaller clumps, acini or cords. Many of the nuclei are hyperchromatic and some show mitotic figures. Part of the stroma shows a degenerated reticulated appearance and consists of a net work of long thin pink fibres. A few embryonic blood spaces and some well formed blood vessels are seen.

Krukenburg's tumour of the ovary is a bilateral tumour of the ovaries occurring in young or old patients; usually of myxomatous appearance. Ascites is usually present. Ewing is of the opinion that the pure Krukenburg tumour is usually secondary and that the primary growth is found in other organs such as the stomach. In the case above recorded, there was no ascites, and no primary growth, anywhere else in the abdomen.

We are indebted to the Superintendent, Gosha Hospital, Triplicane, for the notes of the case.

A case of Primary carcinoma of the Larynx with secondary infiltration of the right lung and liver.

History of the case.—Patient Alexander Oliver, aged 53 years, male, Anglo-Indian, was admitted into the Mental Hospital, Kilpauk, on the 15th February 1918 for Dementia Preacox. He came from Pondicherry. His mental condition was not improving all these 12 years in the hospital. But physically he was doing quite well till February last He was not taking food properly, was occasionally vomiting and losing weight since Frbruary 1930. He had a peculiar brassy hacking cough without expectoration. There was no fever or jaundice and his motions were well formed. A physical examination in March 1930 showed consolidation of the apex of the right lung and the liver was rapidly increasing in size downwards. It was also tender. In fact during the last 3 days before his death, the liver was increasing in size by about 1 inch per day. He began to lose ground rapidly and died on 22-3-30.

A post-mortem examination was conducted and the following are the brief appearances noted. The liver was very much enlarged and there was a nodular growth in the whole of the liver. The apex of the right lung was also found studded with pale deposits and there were a few such deposits in the larynx also. There were no deposits in the other organs, thoracic or abdominal and no evidence of any growth in the stomach, intestines or rectum could be found. The larynx, oesophagus, right lung and liver were sent to the Pathology department, Madras Medical College for examination.

Larynx.—On the inner surface of the larynx and above the vocal cords, is a firm yellowish brown infiltrating mass, involving the entire upper half of the larynx. The lymph glands in the neighbourhood are infiltrated. The oesophagus is free.

Microscopically section shows dense masses of somewhat small cells with dark nuclei, occupying practically the entire cells. The protoplasm is scanty. These masses are found in

the submucous layer of the larynx. The condition is one of spheroidal cell carcinoma of the larynx—intrinsic variety.

Right lung.—At the apex of the right lung are seen a few pale deposits varying in size from a pin's head to a pea. On section—these are well seen. The surrounding lung tissue is firm and fibrosed. Microscopically section shows masses of dark spheroidal cells with scanty protoplasm. The alveoli surrounding these areas are congested.

Liver.—The liver is very much enlarged. Weight about 6 lbs. The entire surface is studded with numerous greyish and yellowish brown slightly raised patches, varying in size from a pin's head to that of a marble. In many places these areas have coalesced to form large patches with irregular wavy edges. On section similar areas are seen in the liver substance which is of a reddish brown colour.

Microscopically.—Section shows masses of small oval cells with large dark staining nuclei and scanty protoplasm. The intervening liver tissue shows cloudy swelling, fatty degeneration and brownish pigmentation.

The condition is one of primary carcinoma of the larynx (intrinsic variety) with secondary infiltration of the right lung and liver. The age incidence is chiefly between 40 and 50 years, through several cases have been observed in children of 3 to 6 years (Rehn Steiner). Males are much more affected than females, chronic laryngitis and the misuse of alcohol and tobacco and the co-existence of syphilis are supposed to have a predisposing influence on the condition. The anterior portion and commissure of the vocal cords and vicinity are the chief seat of carcinoma.

In frequency the various locations stand in the following order; true vocal cords, false cords, posterior surface of cricoid, epiglottis and the lateral plicae and sinuses. The location suggests the division of laryngeal carcinoma into intrinsic and extrinsic forms. The former are much the more numerous except in females. (Ewing).

The course of laryngeal carcinoma is much influenced by the type and location. The usual termination is by cachexia from dysphagia, suppuration and haemorrhage with terminal pneumonia. In advanced stages secondary deposits may occasionally appear in distant organs as the lungs, liver, kidney, humerus, dura mater and secondary carcinoma of stomach may occasionally occur from extension through the lymph vessels. (Ewing).

We are indebted to the Superintendent, Mental Hospital, Kilpauk, for the notes of the case.

Rhinosporidium Kineyali in the Female.

The following two cases are mentioned because of the comparative rarity of Rhinosporidium kineyali in the female. Only one or two cases have been published so far in the Madras Presidency.

CASE NO. *I.*—Dhatchayaniamma, 13 years, female, Hindu (Nair) was treated at the Government Hospital, Palghat, on 1st October 1929, for a growth from the left nostril. The growth had a pedicle and was adherent to the turbinal bones. The duration of the tumour was 4 months. A portion of it was sent to the Pathology department, Madras Medical College, and the microscopic appearances are typical of Rhinosporidium.

Further details of the case are not available.

CASE NO. *II.*—Kalichettichiar, 25 years, female, Tharagan was treated at the Government Hospital, Palghat, on 12th April 1930 for a polypoid growth of the left nostril. The growth was granular, reddish, easily bleeding and was protruding through the left nostril. It was pedunculated, of the size of a small lime, elongated and was attached to the turbinal bones. The duration of the tumour was 4 years A portion of the tumour was sent to the Pathology department, Medical College, and the microscopic appearances are typical of Rhinosporidium.

We are indebted to the Medical Officer, Government Hospital, Palghat, for the notes of the cases.

EDITORIAL.

The Committee that met at Simla recently to decide about the location of the Indian Research Institute have recommended the location of the Institute at a University centre. The decision is a sound one, as a University centre, with its clinical material and facilities for research is the ideal place for a research institute. Calcutta has its School of Tropical Medicine and Hygiene. Madras has the King Institute, Guindy, and Pasteur Institute, Coonoor; Bombay has the Parel Laboratory. But the claims of Southern India require consideration by the Government of India, and we hope the Government of India will not overlook their claims.

* * * *

We congratulate Dr. T. S. Tirumurti on his being appointed to act as Vice-Chancellor of the Andhra University. Dr. Tirumurti is a popular figure in South India and we wish him greater success in his career.

* * * *

We also congratulate Dr. P. Kutumbiah, M. R. C. P., and Dr. T. Bhaskara Menon, M.D., M. R. C. P., on their new appointments as Acting Civil Surgeon, Vizagapatam, and Acting Professor of Pathology, Medical College, Vizagapatam, respectively, and Dr. P. A. Mathew as Acting Professor of Bio-Chemistry, Medical College, Madras. We are also glad to welcome Dr. P. Krishnaswamy on his return from Europe and are glad to congratulate him on his appointment as Professor of Medicine, Vizagapatam Medical College.

* * * *

It is a matter for gratification to see that Dr. A. Lakshmanaswamy Mudaliar, M. D., has been elected to the governing body of the Indian Research Fund Association, where his vast experience in University Education which he has gathered both here as well as during his European tour will be of immense value. Our congratulations to Dr. A. Lakshmanaswamy Mudaliar.

* * * *

We are interested to hear about the proposal, in Great Britain, of instituting a paid "general medical service" for the provision of every class of population with medical aid, both preventive and curative. The scheme includes pathological, dental, pharmaceutical, preventive and ambulance services. The introduction of the scheme seems an imminent necessity owing to the inadequate hospitalization of the sick amongst the major portion of the population. The United Kingdom is now alone adopting what India has instituted decades ago.

* * * *

We hear that the Drugs Enquiry Committee is commencing its investigations into drug traffic in India and is starting its sittings in Madras. We shall await its report.

* * * *

Heard on the Eastern Front.

Two tommies turned punsters went into a restaurant over on the eastern front and said to the waiter, "We want Turkey with Greece".

The waiter replied, "Sorry, sirs but we can't Servia".

"Well, then, get the Bosphorus".

The boss came in and heard their order and then said "I don't want to Russia, but you can't Roumania". So the two Tommies went away Hungary.—*Commerce and Finance.*

ASSOCIATION NOTES.

Two executive Committee meetings of the Association were held on Thursday the 5th June and Tuesday the 17th June 1930.

Present:—Drs. Rao Bahadur M. Kesava Pai; A. Lakshmanasami Mudaliar; A. Srinivasalu Naidu; M. J Sathanakrishna Pillai; P. Venkatagiri, P. V. Cherian; S. Ramakrishnan. Dr. T. S. Tirumurthy attended the meeting on the 17th June 1930.

At the two meetings the Committee considered the Medical Education Committee's Report and resolved that if Government is to be addressed it must be done at a later date.

A very pleasant function was arranged on the 2nd August 1930 to meet the following members of our association who returned from abroad:

1. Dr. M. R. Gurusami Mudaliar, M D.
2. Dr. M. G. Kini, F. R. C. S. (Edin.) M. Ch. (Liverpool)
3. Dr. S. Venkatasubba Rao, M. D., D. P. M.
4. Dr. P. Kutumbiah, M. R. C P. (London.)

Dr. P. K. Warrier acted as host, and a record attendance of 85% of resident members was registered. Refreshments over, a meeting was held at which Khan Bahadur Azizulla Sahib presided:

Dr. M. R. Gurusami Mudaliar, B.A., M.D., C.M., in recounting his experiences in England acknowledged the courtesy and kindness of Englishmen in their own home and the facilities he was given by every dean to enable him to learn all he wanted in a much shorter time than he had expected. He noted that Medical Therapeutics was still in a nebulous stage, that there was still some confusion between Pharmacology, which was purely experimental and Therapeutics which was entirely clinical—so that one had to take out a license to experiment on animals:

while one did the same on human beings without having to take a license.

Dr. M. G. Kini, M.B., F. R. C. S. (Edin.) M.CH. (Liverpool,) admired the Englishman's power of organisation and sense of discipline. The house surgeons and post graduates set a great example for hard work. He referred to the inspiring influence of Sir R. Jones and to the excellence of the specialists in England, but the General Practitioner could not compare very favourably with the General Practitioner here.

Dr. Kutumbiah, B. A., M B. B. S., M. R C. P. (London), *had an experience somewhat unlike that of Dr. M. R. Gurusami* Mudaliar. He had the misfortune to be refused admission in every hospital because he had no 'recommendation'; His experience at Vienna was much pleasant. He would advise the medical student to learn German and go to the Mecca of the Medical World-Vienna.

Dr. S. Venkatasubba Rao, M. D, D. P. M., referred to his work in the Psychiatry schools and clinics of England and America and discussed the present position of the subject in the teaching and practice of Medicine.

An ordinary meeting of the Association was held on 22nd August 1930 when Dr. P Kutumbiah gave his impressions on " The Practice of Medicine in the West."

An executive Committee meeting was held on 6th September 1930, at Dr. A. Lakshmanasami Mudaliar's house at 6 p.m.

Present:—Drs. A. Lakshmanasami Mudaliar; P. Venkatagiri; P. V. Cherian; A. Srinivasalu Naidu; S. Ramakrishnan.

The Committee considered the letter from the Registrar, Madras Medical Council regarding the Code of Medical Ethics and drafted a reply.

CORRESPONDENCE.

MADRAS,
Dated 17th June 1930.

FROM

M.R.RY. RAO BAHADUR
DR. M. KESAVA PAI AVL., M.D.,
PRESIDENT, MADRAS MEDICAL ASSOCIATION,
48, Harris Road, Mount Road, Madras.

TO

THE PERSONAL ASSISTANT TO
THE SURGEON-GENERAL WITH THE GOVERNMENT OF MADRAS.

SIR,

With reference to para 161(7) of Section IX of Civil Medical Code regarding casual leave, the Executive Committee desires me to bring to your notice the great hardship to which members of the service are subjected in having to wait for the sanction of the Surgeon-General's Office before availing themselves of casual leave required urgently.

Casual leave is intended for emergencies and as such the officer cannot wait until the District Medical Officer writes to the Surgeon-General, obtains a reply from him, and communicates the same to the officer concerned.

The Executive Committee therefore requests that as was done previously, when casual leave is required on emergencies, the District Medical Officer may be authorised to grant the same in anticipation of the Surgeon-General's sanction making his own local arrangements for carrying on the work.

I have the honour to be,
Sir,
Your most obedient servant,
(Sd.) M. KESAVA PAI,
President, Madras Medical Association.

MADRAS,

Dated 3rd July 1930.

FROM

THE PERSONAL ASSISTANT TO

THE SURGEON-GENERAL WITH THE GOVERNMENT

OF MADRAS

TO

THE PRESIDENT,

MADRAS MEDICAL ASSOCIATION,

Madras.

SIR,

In continuation of my letter Ref. No. 1645-1 Est., dated the 23rd June 1930, I have the honour to state that the District Medical Officers, etc., can always grant casual leave and holidays to Medical Officers in anticipation of the Surgeon-General's orders in really emergent cases. This is being done at present by several District Medical Officers etc. A circular is however being issued that really emergent casual leave may be granted to Medical Officers in anticipation of the sanction of the Surgeon-General provided suitable local arrangements are made for carrying out the work of the Medical Officers.

I have the honour to be,

Sir,

Your most obedient servant,

(Sd.) P. K. WARRIER,

Ag. Personal Assistant to

the Surgeon General with the Government

of Madras.

MADRAS,
Dated 12th August 1930.

FROM

THE REGISTRAR,
MADRAS MEDICAL COUNCIL,
Madras

TO

THE SECRETARY,
MADRAS MEDICAL ASSOCIATION,
Madras.

SIR,

Your opinion is invited on the code of Medical Ethics in Part II of the Madras Medical Registration Act, and you are requested to suggest any modification of the Code which you may think appropriate.

Copies of the Code may be obtained from the Registrar, Madras Medical Council, 18, Royapettah High Road, Madras, for six annas.

All replies and suggestions to be sent to the Registrar, Madras Medical Council, by the 25th September 1930.

(Sd.) H. CHATTERJEE,
Registrar,
Madras Medical Council.

MADRAS,
17th September 1930.

To

THE REGISTRAR,
MADRAS MEDICAL COUNCIL, MADRAS.

Sir,

With reference to your letter No. 288-MK-1930 dated 12th August 1930, I have the honour to forward herewith the opinion

of the Executive Committee of my Association for such consideration as the Council may be pleased to give it.

The Executive Committee is generally in agreement with the Code of Medical Ethics published in Part II of the Medical Registration Act. The Committee feels that if these rules are observed by everybody in the Medical Profession, a great deal could be achieved in strengthening the position of the profession in the country and improving the relationship of the members of the Profession While there is undoubtedly some improvement since the passing of the Medical Registration Act, the Association feels that a great deal more is still left to be desired

The Association would like to draw the attention of the Medical Council to Rule 2 on page 40 which runs as follows·

"No member should meet in consultation any practitioner who is not registered, but this rule does not apply to practitioners who are registered elsewhere and who are temporarily resident in or passing through this Presidency provided the qualification is granted by a body recognised by the Madras Medical Council".

This rule, if strictly applied, should prevent a registered practitioner from attending to a case attended to by any person who is not registered, either because he does not possess that qualification, or because though he possesses such a qualification, he has not cared to be registered or he is not on the Register for other reasons It may be pointed out in this connection, that the strict application of this rule in this part of the country has certain definite difficulties. The Association does not, for a moment, question the wisdom of this rule, and in fact, it is anxious that that rule should be applied in as strict a manner as possible but at the same time, it feels that there are certain difficulties in the way of the members of the Association following this rule in its strict application without jeopardising themselves both to possible unpopularity in the town or village and disapproval of those in authority over them for the time being. There are three types of practitioners who may be taken note of under the term 'unregistered practitioners'

(1) The unregistered qualified Allopathic Practitioners

(2) The L.I.M.'s who have passed out of the Government School of Indian Medicine.

(3) The Ayurvedic Physicians who have established themselves in different parts of the country, but have not a Government diploma.

The Association has no doubt that so far as the first class of practitioners are concerned, it is the duty of any member of the profession on the Register not to have any joint consultation with such members. The difficulty in regard to the second class of practitioners is very material. At present, in many Taluk Boards, dispensaries have been opened, staffed by L.I M.'s. A private practitioner may be in a position to say he will not have any joint consultation with such a practitioner. The case of a Government servant is one however, which is, as stated above, beset with difficulties. He can also say that he is not prepared to have joint consultation but the matter is hardly likely to end there: unfavourable comment, probably often of resentment at such an attitude, and the many pinpricks consequent thereof, are some of the inevitable results of such a course of conduct. Even with regard to the third class of practitioners, while no joint consultation can possibly take place, the position is one which has got to be handled with some amount of tact.

The Association feels that the difficulty really arises with the second class of practitioners who are supposed to have had some training in Allopathic Medicine. The Association desires to draw the attention of the Medical Council to this aspect of the question and should be thankful if some definite pronouncement be made upon this subject by the Council, so that the Members of the Association who are in the unfortunate position of having to serve more than one master will know exactly what their conduct ought to be

The Association hopes that now that attention of various bodies and probably of individuals has been directed to the Code

of Medical Ethics, the Council will be able to remedy many of the irregularities that are existing at present, and both by persuation and compulsion, if necessary, help to set up a high Code of Medical Ethics for the Profession In any such endeavours, the Association begs leave to state that it will whole-heartedly co-operate with the Council and throw what influence it has got with its members towards the achieving of such an object.

I have the honour to be,
Sir,
Your most obedient servant,
S RAMAKRISHNAN,
Secretary, Madras Medical Association.

Sole of Her Foot.

First Doc—" You look worried ".

Second Ditto—" I am. I have a very puzzling case. A flapper wants to be vaccinated and insists I vaccinate her where it won't show ".—*Cincinnati Enquirer.*

Wrong Label.

A patient with scabies went to the out-patients department of a hospital and was given a pot of ointment. He went again 3 days later and asked for more ointment as the original stock was over, and that his scabies was as bad as ever. The doctor saw the following on the label of the ointment box— " One teaspoonful thrice daily after food ". Thank God! It was only sulphur.

A patient who had an orchitis of the right side complained to the doctor that " his right kidney was swollen ". (An abnormality in development, probably ?)

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